SWAM

SPECULUM MUNDI

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SPECULUM MUNDI

or

A Glaſſe repreſenting the Face of the World.

Whereunto is added a Diſcourſe of the Creation, together wth a Conſideration of ſuch things as are pertinent to each dayes Worke.

Written

By John Swan Mr of Arts
late Student of Trinitie Colledge Camb.

Pri. in Cambridge.
By T. Buck and R. Daniel.
1635.

To the Reader.

Gentle Reader,

I *Preſent thee here with a book of no great volume, yet ſtor'd with much varietie; and ſeeing I am guiltie of my many weak infirmities, and no few overſights, I cannot but crave thy courteous acceptation: for it is a granted Maxime, that a ſtander by hat[h] often better eyes then they who play the game. Howbeit he were no man that could not erre, no more then they whoſe rancor'd mouthes ſhall bite with ſcern, or vent the poiſon of a loath'd diſdain. In a word, if thou expecteſt quaint language, or fragrant flowers of flowing Rhetorick, I am ſomewhat ſorie my ſad fate ſhould prove ſo cruell as not to give way for ſatisfaction. Beleeve it, I could have wiſhed a better ſtile, and not been ſorie to have ſoar'd aloft: and yet again I muſt confeſſe, that as eloquence was never any part of my eſſence, ſo neither was my aim ſo much at that, as to produce apt matter fitting the ſeriouſneſſe of the ſubject I took in hand. And verily if in this my hopes fail me not, I do not fear but my pains will be accepted: for although I go not about to teach the learned (becauſe* Humiles arbuſta juvant) *yet the ignorant may be inſtructed in what before they knew not; yea, and the learned alſo may be occaſioned to call again to minde ſomething which (for the preſent) hath either ſlept, or ſlipt their memories by reaſon of their better thoughts, and deeper contemplations. Be not therefore unjuſt judges in an harmleſſe cauſe, nor forward cenſurers, churliſhly to blaſt young ſpringing bloſſomes in their tender bud: but rather take in good part this from him, who reſteth, as his own, ſo alſo*

Yours in this or the like endeavour,

JOHN SWAN.

TO

To his friend the Authour.

THou art the World, and now methinks I ſee
A world of goodneſſe here diſtill'd from thee;
Diſtill'd in lines ſo ſweetly, I proteſt
I thought thy book the cryſtall of thy breaſt:
Where live Idea's, ſuch as all ſhall paſſe
When they endure; onely in clearneſſe glaſſe.
Yet now i'le blame thee: If thou would'ſt have had
The world drawn right, ſome line ſhould have been bad.

THO. HARLESTON, Coll. *Pemb.*

WHen freſh Aurora firſt puts forth her head,
And calls bright Sol from out his Eaſtern bed,
She modeſtly doth bluſh; her crimſon die
Makes red the verges of the dawning skie:
Fearing (perhaps) that Sols reflecting ray
Procures too hot, to ſome too cold a day.
So I, with baſhfull fear and trembling doubt,
This new-born book into the world ſend out.
Some (ſure) 'twill pleaſe, but never all did any.
I wiſh the All *were few, the* Some *were many.*
But be they as they will; 'tis told me ſince,
That envie ſnarleth moſt at innocence:
And thoſe who leaſt know where to finde th' amiſſe,
Will ſooneſt brag they could do more then this.
Let them go on; they hurt not me nor mine;
Detracting harms reflect at home in fine.

J. S.

A table of the contents in the ſeverall Chapters, Sections, Paragraphs, Articles, and Queſtions, which are contained in this book.

CHAP. I.

THe firſt Chapter concerneth the worlds beginning and ending; and is divided into three Sections.

Sect. 1. *That the world began, and muſt alſo end.*

Sect. 2. *Of the manner how the world muſt end.*

Sect. 3. *Of the ſundry times which ſome have fancied out for the worlds ending.*

CHAP. II.

THe ſecond Chapter concerneth the time of the yeare when the world began: and it is divided into ſeven Sections.

Sect. 1. *Of three opinions concerning the time of the worlds creation; with a confutation of the firſt.*

Sect. 2. *Their reaſons ſhewed who ſuppoſe the time to be in the Spring.*

Sect. 3. *That the world began in Autumne; with an anſwer to their firſt reaſon who endeavour to prove it was in the Spring.*

Sect. 4. *An anſwer to their ſecond reaſon.*

Sect. 5. *An anſwer to their third reaſon.*

Sect. 6. *An anſwer to their fourth reaſon.*

Sect. 7. *Concluding the time to be Autumne.*

CHAP. III.

THe third Chapter concerneth the firſt day of the world; and is divided into three Sections.

Sect. 1. *Of God the Architect of all; and of the firſt part of the firſt dayes work.*

Sect. 2. *Of the creation of Light.*
Sect. 3. *Of the intercourſe between day and night.*

CHAP. IIII.

THe fourth and fifth Chapters concern the ſecond day, with ſuch things as are pertinent to the work done in it; and are divided into theſe following Sections, Paragraphs, and Articles.

Sect. 1. *Of the* Expanſum, *or ſtretching out of the heavens, called the Firmament.*
Sect. 2. *Of the waters above the heavens.*
Sect. 3. *Of the matter of the heavens, &c.*

CHAP. V.

THe fifth Chapter beginneth with the ſecond part of the ſecond dayes work; and hath two Sections.

Sect. 1. *How to underſtand the word* Heavens.
Sect. 2. *Of the Aire; together with ſuch appearances as we uſe to ſee there. This Section hath ſeven Paragraphs.*
Parag. 1. *Of the diviſion and qualitie of the Regions in the Aire.*
Parag. 2. *Of Meteors: firſt in generall; then how they be divided in particular.*
Parag. 3. *Of Fierie Meteors, ſuch as are ſaid to be pure and not mixt. This Paragraph hath thirteen Articles.*
1. *Of burning Torches.*
2. *Of burning Beams.*
3. *Of round Pillars.*
4. *Of Pyramidall Pillars.*
5. *Of burning Spears, Streams, or Darts.*
6. *Of dancing or leaping Goats.*
7. *Of flying Sparks.*
8. *Of ſhooting Starres.*

9. *Of flying Launces.*
10. *Of Fires in the Aire, two kindes.*
11. *Of Flying Dragons, or Fire-Drakes.*
12. *Of Wandring Lights.*
13. *Of Licking Lights.*
Sect. 2. *of the fifth Chapter, ſtill continued.*
Parag. 4. *of the ſecond Section. It concerneth Fiery Meteors impurely mixt.*
This Paragraph hath three Articles.
1. *Of Comets, &c.*
2. *Of New ſtars, their matter and ſignifications.*
3. *Of Thunder and Lightning.*
Parag. 5. *Of ſuch Meteors as are Fiery onely in appearance. This hath ſeven Articles.*
1. *Of the* Galaxia, *that it is no Meteor.*
2. *Of Colours in the Clouds.*
3. *Of many Sunnes and Moons.*
4. *Of Beams or Streams of Light.*
5. *Of Circles or Crowns.*
6. *Of the Rain-bow.*
7. *Of Openings, or Chaps in the skie.*
Parag. 6. *Of Watery Meteors, and of their ſeverall kindes.*
This Paragraph hath eight Articles.
1. *Of Clouds, and their matter.*
2. *Of Rain.*
3. *Of Dew.*
4. *Of Froſts.*
5. *Of Snow.*
6. *Of Hail.*
7. *Of Miſts, and their kindes.*
8. *Of the Cobweb-like Meteor.*
Parag. 7. *Of Aiery Meteors. This hath five Articles.*
1. *Of divers opinions concerning Winde.*
2. *Of Winde, what it is, &c.*
3. *Of the diviſion of Windes, &c.*

4. *Of the qualitie and nature of Windes.*
5. *Of Whirl-windes, Storm-windes, &c.*

CHAP. VI.

The ſixth Chapter treateth of the third day, together with ſuch things as are pertinent to the work done in it. Here be foure Sections, and two Appendices.

Sect. 1. *Shewing into how many main parts the buſineſſe of this day may be diſtinguiſhed.*

Sect. 2. *Concerning the firſt thing done;* viz. *The gathering together of the Waters, which God Almighty calleth Seas. This Section diſputeth ſeven Queſtions.*

1. *How the Waters were gathered together.*
2. *How they could be gathered but to one place, ſeeing there be many Seas, Lakes, Rivers, and Fountains, farre aſunder.*
3. *Whether they be higher then the Earth.*
4. *Whether there be more Water then Earth.*
5. *Whether the Earth be founded upon the Waters.*
6. *The originall of Rivers; as alſo why the Seas be ſalt and Rivers freſh.*
7. *Of the Ebbing and Flowing of the Sea.*

Unto which Section, an Appendix is joyned: and it concerns ſtrange properties in certain Wells, Waters, and Fountains.

Sect. 3. *Of the Drie-land, appearing after the Waters were gathered: wherein the cauſe of Earth-quakes, together with the compaſſe and circuit of the Earth, is ſhewed.*

Sect. 4. *Of the Sprouting, Springing, and Fructification of the Earth: wherein the varietie, and vertues of ſundry Herbs and Trees, is largely diſcovered, according to the beſt Authours.*

Unto which two laſt Sections, an Appendix is joyned concerning all kinde of Metals, as Gold, Silver, Stones of all ſorts, and ſuch like things as are under ground.

CHAP.

CHAP. VII.

THe ſeventh Chapter concerneth the fourth day, together with ſuch things as are pertinent to the work done in it; namely the Matter, Names, Natures, Motions, and Offices of the Starres. It hath three Sections.

Sect. 1. *An entrance towards the diſcourſe of the Stars and Lights.*

Sect. 2. *Of the Matter, Place, Motion, and Height of the Starres, &c. This Section hath two Articles.*

1. *That the Starres conſiſt moſt of a Fiery matter, and are cheriſhed by the Waters above the Heavens; as was mentioned,* Chap. 4.
2. *Of their Order and Place in the Skie: and why one is higher then another.*

Sect. 3. *Of thoſe offices given to the Starres when they were created. This third Section hath three Paragraphs.*

Parag. 1. *Shewing that their firſt office is to ſhine upon the Earth, to rule the Day and Night, &c. Here we have two Articles.*

1. *Of Light, what it is: and whether the Sunne be the onely fountain of Light.*
2. *Of the Starres twinkling, and Sunnes dancing.*

Parag. 2. *Of that other office;* viz. *that the Starres ſhould be for Signes, &c. This Paragraph hath three Articles.*

1. *That the Starres work upon the inferiour world, and are ſignes of future events.*
2. *Whether it be not a derogation from the perfection of things created, to grant that the Starres may give an inclination to Man, in his actions.*
3. *Of Predictions, or underſtanding the Signes.*

Parag. 3. *Of that other office, wherein the Starres were made (as it were) heavenly clocks. This hath three Articles.*

1. *Of Seaſons; as Spring, Summer, &c.*

2. *Of*

2. *Of Dayes and their kindes, &c.*
3. *Of Yeares and their kindes, &c.*

CHAP. VIII.

THe eighth Chapter concerneth the creatures made in the fifth day of the world; viz. *Fiſh, and Fowl. This Chapter hath two Sections.*

Sect. 1. *Of Fiſhes, their names, kindes, properties; together with ſundry emblemes drawn from them.*
Sect. 2. *Of the names, kindes, and properties of Fowls; with many and ſundry emblemes drawn from moſt of them.*

CHAP. IX.

THe ninth Chapter concerneth the creatures made in the ſixth and laſt day; being ſuch creatures as live neither in the Aire or Water, but upon the Earth. This Chapter hath likewiſe two Sections.

Sect. 1. *Of Beaſts, their properties, names, kindes, &c. together with ſundry emblemes drawn from many of them.*
Sect. 2. *The creation of Man, being created male and female, and made according to the image of God: together with the inſtitution of Marriage, and bleſſing given to that eſtate.*

CHAP. I.

Wherein is ſhewed that the world neither was from eternitie, nor yet ſhall be extended to eternitie; but that it had both a beginning, and ſhall alſo have an ending: wherein alſo is conſiderable how that ending ſhall be; as alſo the time when is largely examined.

Sect. 1.

That the world began, and muſt alſo end.

THe Philoſophers of ancient times were diverſly tranſported in the ſtream of their own opinions, both concerning the worlds originall and continuance: ſome determining that it once began; others imagining that it was without beginning, and that the circled orbs ſhould ſpin out a thread as long as is eternitie, before it found an ending. Plato could ſay that it was, *Dei Patris ad genus humanum epiſtola*, an epiſtle of God the Father unto mankinde; and that God was Δημιουργὸς, ποιητὴς, καὶ πατὴρ τοῦ ὅλου, the Creatour, Maker, and Father of the whole univerſe. But [a] Ariſtotle ſticked not to affirm that the world neither began, nor yet ſhall end. Yet this his opinion, himſelf being witneſſe, was nothing elſe but a Paradox; and (as without wrong to him may be affirmed) he maintained it rather by way of contradicting others, then for any

Plato in Timæo.

a Lib. 1. de Cælo, cap. 10, 12. & lib. 2. c. 1. lib 8. Phyſ. & lib. de gen. & cor.

deſire of truth, calling it *Problema topicum,* as in the firſt book of his Topicks, chap. 9. is manifeſt; and as in [b] that book written in his old age to king Alexander the Great, he alſo confeſſeth. This therefore made [c] one ſay, that it was not ſo much a logicall queſtion, as a theſis or poſition which Ariſtotle held and maintained: whoſe reaſons ſome have called * *vain ſophiſtications to obſcure the truth, having more wit then matter in them*; and may again be anſwered by more ſolid arguments then he alledgeth. For that the world had both a beginning, and muſt alſo have an ending, even reaſon it ſelf, although there were no Scripture for it, is ſufficient.

b *Lib. de mundo.*

c Pareus on Gen.

* *Inania ſophiſmata ad obſcurandam veritatem, ingenioſè magis quàm ſolidè excogitata. Pareus ibid.*

As firſt, if the world were eternall, then there would be ſome memorie given us of the generations of men more ancient then that which Moſes mentioneth: but there is none given us; for all other hiſtories are but late in reſpect of the ſacred ſtorie: which is an evident argument, not onely againſt the eternitie of the world, but alſo againſt the fables of the Egyptians, Scythians, and Grecians, concerning their ancientneſſe, and the ancientneſſe of their acts and deeds of fame.

For indeed (omitting their palpable fictions) when Ethnick writers tell us of any ancient thing, it is either concerning the Thebane or Trojane warre; of *Cecrops,* of *Inachus,* of *Ogyges, Deucalion,* or *Janus*; of *Ninus,* or his father *Belus,* or of the warre of the giants; ſtriving to heap mountain upon mountain that they might pull the gods out of heaven. Now all theſe were either about the dayes of the Judges, Moſes, Abraham, or Noah at the furtheſt. For to whom did they allude by their *Janus* with two faces, but to *Noah,* who ſaw the times both before and after the floud? Or whom did they point at by their *Gigantomachia,* when *Pelion* (forſooth) muſt be ſet upon *Oſſa's* back, and all thrown down with a thunder-crack; whom (I ſay) did they

point

point at, but *Nimrod* and his company, or thoſe who built the tower of Babel, and had their languages confounded for it?

That of the Poet is therefore pertinent, Lucret. lib.6.

——— Si nulla fuit genitalis origo
Terrarum & cœli, ſempérque æterna fuère:
Cur ſupra bellum Thebanum & funera Trojæ
Non alias alii quoque res cecinêre Poetæ?
Quò tot facta virûm toties cecidêre? nec uſquam
Æternis famæ monimentis inſita florent?

If that the heavens and earth did not begin,
Had no creation, but remain'd from aye;
Why did not other Poets ſomething ſing
Before the Thebane warre, or fall of Troy?
What are become of great mens many deeds?
They could not die,
But would remain unto poſteritie.

Secondly, thus it may be alſo proved; All things which are to us conſpicuous, conſiſting of matter and form, are of themſelves frail and fading, having ſuch a nature, that they either are or may be ſubject to corruption; but ſuch is the world: and therefore as in reſpect of its eſſence it is finite; ſo likewiſe in reſpect of time it cannot be infinite, but have both a beginning and an ending. For firſt that is properly eternall, which is altogether incommunicable, or which is without beginning, mutation, ſucceſſion, and end: and ſuch onely is God, and not the world. Secondly, it cannot be denied but that there is the ſame reaſon of the whole which is of the parts; ſo that if the parts of the world be ſubject to corruption, then muſt likewiſe the whole world alſo: but the parts are (as we daily ſee) and therefore the whole.

But leaving reaſon, we have a rule beyond it, which is the rule of faith; whoſe firſt aſſertion makes it plain

that the world began; and that Time (by which we meaſure dayes, weeks, moneths, and yeares) hath not been for ever. For, *In the beginning* (ſaith Moſes) *God created the heavens and the earth:* and why is it ſaid, *In the beginning he created*, but that it might be known (eſpecially to his Church) that the world was not from everlaſting?

Gen. 1. 1.

Divinely therefore did *Du Bartas* ſing, as in the ſound of *Silveſter* we have it,

Du Bartas firſt day.

Cleare fire for ever hath not ayre embrac't,
Nor ayre for aye environ'd waters vaſt,
Nor waters alwayes wrapt the earth therein;
But all this ALL *did once of nought begin.*
Th' immutable divine decree, which ſhall
Cauſe the worlds end, caus'd his originall.

Which whoſoever ſhall deny, he doth but betray his miſery; either becauſe he wants Gods holy word to be his rule, or elſe becauſe he diſdaineth to be ruled by it.

How great a priviledge then is that which even the pooreſt Chriſtian hath above the greateſt and moſt wiſe Philoſopher! And as for the ſcoffing Atheiſt, whoſe peeviſh and perverſe opinion leads him up and down in an affected cloud of ignorance, diſdaining to have faith, becauſe he ſcoffeth at the rule of faith; it is no more then thus with him, he kicks againſt the pricks, and cannot therefore eſcape away unhurt. For, *Sequitur injuſtos ultor à tergo Deus*; God, as a revenger, follows at the heels of a ſinner,

Which many thouſands now can witneſſe well;
Whoſe faults with woe recanted are in hell.

Sect. 2.

The manner of the worlds ending is ſhewed.

But concerning the worlds ending, here fitly may ariſe this queſtion, viz. Whether it ſhall be deſtroyed according to the ſubſtance, or according to the qualities.

1. If it be deſtroyed according to the ſubſtance, then it muſt be ſo deſtroyed, as that nothing of it be remaining.

2. If it be deſtroyed according to the qualities, then it ſhall onely be purged, the ſubſtance ſtill abiding.

Now of both theſe opinions there can be but one truth; which I verily think to be in the latter of them. For although it be ſaid in S. Peter, that * *the heavens ſhall paſſe away with a noiſe, & the elements ſhall melt away with heat, &c.* Yet it is not ſo farre forth to be underſtood, as that in their ſubſtances they ſhall be quite burnt up; but rather that they ſhall be purified in their vicious qualities, which the vanitie of ſinne hath laid upon the model of the whole world. And this S. Paul points at when he ſaith, that * *the creature it ſelf ſhall be delivered from the bondage of corruption into the glorious libertie of the ſonnes of God. For we know* (ſaith he) *that the whole creation groneth and travaileth in pain together untill now.* And again in the hundred and ſecond Pſalme, where the Prophet ſaith that * *the heavens and the earth ſhall periſh, and wax old*; he ſheweth that their periſhing ſhall onely be a changing: *For as a veſture ſhalt thou change them, and they ſhall be changed.*

* 2. Pet. 3. 10.

* Rom. 8. 21, 22.

* Pſal. 102. 26.

Whatſoever therefore is ſpoken of their conſuming, paſſing away, and periſhing, is meant onely in reſpect of their corruptible qualities, the ſubſtance ſtill abiding: and ſo ſhall the fire at the laſt day ſerve for a purging, not for an utter conſuming. There ſhall indeed be nothing unchanged, becauſe all things ſhall be renewed, and each thing brought into a perfect ſtate, Acts 3. 21. *A new heaven and a new earth*, 2. Pet. 3. 21. Not new by *creation*, but by *commutation*; *Non per interitum priſtinorum, ſed commutationem in melius*, as ſaith* S. Hierome; *Not by a deſtruction of the old, but by a change into a better.*

* Hier. on Eſay.

Which thing is yet further ſeen even in the little

world Man, who is the Epitome of the greater world it ſelf. For he, in the ſubſtance of his bodie, ſhall not be deſtroyed, but changed; and in ſtead of corruption ſhall put on incorruption, as ſaith S. Paul; beholding at the laſt day his Redeemer, *not with other* (ſaith Job) *but with theſe ſame eyes*. In like manner, the greater world, in ſtead of corruption, ſhall (I verily think) put on incorruption; and being purged by the fire, ſhall be delivered * *into the glorious libertie of the ſonnes of God.* It ſhall not be delivered onely in the libertie of the ſonnes of God; that is, when they are delivered: but it ſhall be delivered εἰς τὴν ἐλευθερίαν, into their libertie; as it is Rom. 8. 21. If it were onely in their libertie, or when they are delivered; then in ſtead of a changing, there might be a conſuming: which is in ſome ſort a deliverie; becauſe (although quite taken away) there is then no longer a ſubjection unto vanitie: but ſeeing it is into the libertie of the ſonnes of God, it ſhall (like mans glorified bodie) put on incorruption; and ſo, *ſuo modo*, in its kinde, be partaker of an incorruptible ſtate.

1. Cor. 15. 53. Job 19. 26.

* Rom. 8. 21.

The creatures remaining at the worlds ending.

But in this changing, I think we may fitly exempt all ſuch creatures which now ſerve onely for the neceſſitie of mans life; as thoſe which be for food, clothing, and the like: becauſe then (at the end of the world I mean) there ſhall be an end likewiſe of all ſuch needs.

Yet there are thoſe who comprehend the brute beaſts alſo, and other creatures having ſenſe and life, within the limits of this libertie: but they do ſomewhat qualifie their meanings; as thus: They ſhall not be partakers of the glorie of the ſonnes of God; yet in their kinde they ſhall be fellows with them in that glorious ſtate, like as once they were in Paradiſe, before man had fallen. But whether I may embrace this opinion, I know not; and that in regard of the foreſaid reaſon: unto which others alſo aſſent, [a] ſaying, *Iſtas naturas rerum non manſuras in extremo*

a *Pet. Mart. loc. com.* See alſo Dr. Willets Hexap. on Rom. chap. 8. quæſt. 34.

extremo die, niſi aliquid opus habituræ ſint. Wherefore we may rather relie upon this, without any ſuch ſpeciall reſpect unto thoſe creatures; namely, that the worlds fabrick, conſiſting of heaven and earth, ſhall not be deſtroyed, but renewed according to the qualities, by the purging fire. For *the moon ſhall ſhine as the ſunne, and the light of the ſunne ſhall be ſevenfold,* as ſaith the Prophet Eſay, chap. 30. 26. which S. Hierome expoundeth thus, viz. that the ſunne and moon ſhall receive that admired augmentation of light, as a reward of their labours. Yea and * Zachary alſo witneſſeth that there ſhall be but one perpetuall day: for there ſhall be ſo great light that there ſhall be no difference between day and night; as ſome obſerve from thence. Neither is it a marvel, ſaith [b] Chryſoſtome, that the creatures ſhould at that time be illuſtrated with ſo great ſplendour and light: for kings, upon the day when they inaugurate their ſonnes, are wont to provide, not onely that they may come forth with all ſingular pomp and appearance; but alſo that their ſervants may be well adorned. Much more therefore may we think, when Chriſt ſhall ſit in glorious majeſtie upon his throne, and the juſt, who are the ſonnes of God, ſhall be admitted to their paternall heritage and kingdome, that then God Almighty ſhall cauſe that all his creatures be decked with an extraordinary brightneſſe, beautie, and luſtre. For although it be * ſaid that the moon and the ſunne ſhall ſhine no more, but rather that the Lord himſelf will be for an eternall light; yet it meaneth not that thoſe ſtarres ſhould periſh, but that the uncreated light ſhall be [c] more glorious. So that as now the greater light obſcures the leſſe; in like manner it ſhall be then when we come into that citie which wanteth not the ſunne or moon. It is not ſaid, *Solem & lunam non habebit; ſed, Non indigebit, ut luceant in ea;* that the citie ſhall have no ſunne and moon; but that it ſhall not want them.

* Zach. 14. 7.

b Pet. Mart. on Chryſoſt.

* Eſay 60. 19. Revel. 21. 23.

c Pare. in Apoc. cap. 21.

them to ſhine in it: ſilently declaring, that then indeed ſhall be thoſe luminaries; yet they ſhall not then perform, as now, the ſame uſes of light, being ſubject to motion, and an inceſſant wheeling up and down to cauſe a riſing and ſetting, yea and to diſtinguiſh one time and day from another: For time is but as a ſpace borrowed, and ſet apart from eternitie, which muſt at the laſt return to eternitie again. This for the heavens.

Matth. 5. 5.

d Dr. Willet, Hexap. in Rom.

And as for the earth, our Saviour promiſeth, amongſt other bleſſings, a bleſſing to the meek, ſaying, that they ſhall inherit the earth: which promiſe of his (ſaith[d] one) we ſee is not performed in this world; and therefore to be then expected, when there is a new heaven and a new earth for the ſaints of God; and when the whole creation (which now groneth) ſhall be delivered into the glorious libertie of the ſonnes of God. Thus ſome.

But in this new heaven and earth we muſt not expect any terrene pleaſures, as the carnall Jews do dream, as the Turks beleeve, or as that Heretick *Cerinthus* held, and after him the *Millenaries* or *Chiliaſts*: becauſe ſuch pleaſures are fading, and corruptible; joyes farre unfit for ſaints, whoſe very bodies have put on incorruption. We look therefore for new heavens and a new earth wherein dwelleth righteouſneſſe, as ſaith S. Peter, 2 Pet. 3. 13. and ſpirituall delight unto eternitie; as in Pſal. 16. 12.

* Revel. 4. 14.

* Gen. 28. 12.

And further, ſeeing it is ſaid that righteouſneſſe ſhall dwell in the new earth as well as in the new heaven, it may from thence be gathered, that both the heaven and the earth ſhall be the ſeat of the bleſſed; and that the ſaints ſhall * follow the Lambe whitherſoever he goeth; and that there ſhall be an intercourſe between the ſaid heaven and earth: which is as Jacob in his * viſion ſaw, when the angels were ſome of them aſcending, ſome deſcending that ladder which reached from heaven to

earth: or as * Moſes and Elias were ſeen talking with Chriſt upon the Mount. * Matt. 17.3.

But herein let us not be too bold; for in this we may ſoon wade too farre: namely if we ſhould nicely determine how the ſaints ſhall then be diſpoſed of; whether ſome alwayes to the heaven; ſome alwayes to the earth; or ſuch like things which to us are unrevealed.

Let it therefore ſuffice, that although the manner of this change be ſecret, and not known in every point, yet the change it ſelf is moſt certain: and therefore hold we moſt certainly this truth for our ſtay, that the world ſhall end; and leave we the manner thereof to be exactly and particularly revealed by him, who will very quickly perform it. But of the time when, in the following Section.

Sect. 3.

AND thus much concerning the manner of the worlds ending.

Of the time when the world endeth.

Now follows the time when. But here I purpoſe not to meddle with any thing which ſhall tend to the preciſe ſcanning of it. I will leave that to them, who, out of a deſire they have to lanch into the deep, have pried too farre (I fear) into the ſecrets of the Thunderer: for oftentimes we ſee that they do but wiſely tell us fooliſh tales, and ſmoothly bring long lies unto an end, becauſe they ſay more then they have warrant for: To whom *Du Bartas* by our famous *Silveſter* thus ſendeth greeting,

You have miſ-caſt in your Arithmetick,
Miſ-laid your counters, gropingly ye ſeek
In nights black darkneſſe for the ſecret things
Seal'd in the Casket of the King of kings.
'Tis He that keeps th'eternall clock of Time,
He holds the weights of that appointed chime,
And in his hand the ſacred Book doth bear
Of that cloſe-claſped finall CALENDER,

Where, in Red letters (not with us frequented)
The certain Date of that Great Day is printed;
That Dreadfull Day, which doth ſo ſwiftly poſt,
That 'twill be ſeen, before foreſeen of moſt.

Yet ſuch is the folly and curioſitie of many, that they will needs undertake to tell us when this time ſhall be: which if they could, then it ſeems it ſhould not come as *a * ſnare* upon the world, nor yet ſteal upon us as *a thief in the night:* But ſo it ſhall do. For *of that day and houre knoweth no man,* ſaith our Saviour: and we may take his word; becauſe himſelf by his humanitie could not know it: although in his humanitie, by reaſon of his Godhead, he was not ignorant of it. Had he not therefore been God as well as man, and of a divine as well as humane nature, he muſt have remained ignorant in it both with men and angels. Mar. 13. 32. And furthermore concerning us, that we be not too bold, the ſame leſſon which he taught his diſciples is alſo ours, not *to know the times or the ſeaſons which the Father hath put in his own power;* as it is Act. 1. 7.

* Luke 21. 35. 2. Pet. 3. 10. 1. Theſſ. 5. 2. Revel. 16. 15.

From whence we may learn, that whileſt we exerciſe our ſelves in things that be too high for us, we ſhall ſooner betray our own curioſitie, then deliver a truth. For, *Maxima pars eorum quæ ſcimus, eſt minima pars eorum quæ neſcimus;* The greateſt part of thoſe things which we know, is the leaſt part of what we know not.

Whereupon I cannot but think that the predictions of men in this kinde (eſpecially ſeeing they are ſo various) muſt needs be as true as thoſe amongſt the brood of preſumptuous Aſtrologers concerning the end of Chriſtian Religion, which (as [a] *Du Pleſſie* obſerveth from them) ſhould have been ſome hundreds of yeares before this time: nay, it ſhould then have ended, when indeed it began moſt of all to flouriſh: And ſo I doubt not, but am certain, that the world alſo ſhould have had many endings

a *De verit. Chriſt. Relig.*

ings before this time, according to the doting froth of ſome mens idle fancies; which, if need were, I could relate. But as time was little beholding to them for cutting it off ſo ſhort; in like manner they were as little beholding to time for diſcovering their lies ſo plainly.

I will therefore (before I meddle further with ſuch approved liars) leave them unto their beſt friends to gain (if they can) their credit for the time paſt, and addreſſe my ſelf to examine thoſe who talk of a time yet to come.

Amongſt whom the Jews have a tradition, which although they fetch from the ſchool or houſe of Elias, yet we are not bound to credit it: For it was not Elias the Prophet, but a Rabbin of the ſame name, as the learned know; and who more fabulous, or more full of vain fancies, then thoſe their greateſt Doctours?

Six thouſand yeares (ſaith he) the world ſhall ſtand, and then it ſhall be conſumed by fire. Two thouſand yeares ſhal be void or without Law; two thouſand yeares ſhall be under the Law; and the laſt two thouſand ſhall be the dayes of Meſſiah or Chriſt. Thus farre Elias. And that this opinion hath been favoured by † ſome of old, and is alſo favoured now by ſome of our time, I am not ignorant: which chiefly they do for this reaſon; namely, becauſe the ſix dayes of weekly labour do bear the Symbole of 6000 yeares, wherein mankinde ſhould endure the cares, and troubles, and travels of this world; and then ſhall come that Sabbath of Sabbaths in the heaven of heavens, when they are to reſt from their labours. Or as God was ſix daies in creating the world before there was a Sabbath: ſo he ſhall be 6000 yeares in governing it; and then the ſeventh begins an eternall reſt in heaven.

† It was favoured by Juſtin Martyr, Ireneus, Lactantius, Hierome, &c. but diſallowed by Ambroſe and Auguſtine. See Auguſtine in expoſit. Pſal. 90.

Now this they ground upon the words of S. Peter; who, ſpeaking of the day of judgement, noteth that a thouſand yeares in Gods ſight are but as one day, and one day as a thouſand yeares, 2. Pet. 3. 8. So that in this

regard, for ſix dayes of weekly labour, they would have 6000 yeares of worldly trouble, and the like, before it endeth.

But if this weakneſſe be the greateſt ſtrength for maintaining their aſſertion, then I do not doubt to ſee their cauſe fainting upon the ground, as not being able to ſubſiſt, or ſtand upright.

For firſt concerning the Rabbin, had he been a Prophet, he would certainly have been a better Seer. This I am ſure of, that he was much deceived in the particular diviſion of his time, in making three periods, all of 2000 yeares apiece. For although the yeares of the world have been diverſly accounted by ſundry authours; yet you ſhall not finde the Rabbins juſt number of 2000 yeares, from the Creation to the Law, in any of them. *Scaliger*, *Calviſius*, *Helvicus*, *Funccius*, *Bucholcerus*, and others, who reckon the feweſt yeares, do account 453 above two thouſand; and yet they reckon not ſo many as they ſhould by almoſt 60 yeares: ſome ſay altogether 60: as may be ſeen by *Calvin*, *Junius*, *Pareus*, *Ainſworth*, or Dr. *Willet* on Geneſis; beſides many excellent Chronologers: eſpecially Sr. *W. Ralegh* (that learned Knight) who in his hiſtorie of the world makes it plain.

And not onely doth this Elias fail in his firſt diviſion, but in his ſecond alſo: For from the Law to the death of Chriſt are not 2000 yeares; there be wanting well neare 500 to make them up. As for example, take a view again of *Scaliger*, *Calviſius*, *Helvicus*, or our countrey-man Mr. *Thom. Lydiat*, or *Bucholcerus*, or *Petavius*, or *Funccius*, and ſee if it be not even ſo. *Bucholcerus* (I think) wanteth the feweſt, and yet it is manifeſt that he falleth ſhort of 2000. Whereupon it may be ſeen that in his firſt diviſion (which is for the time before the Law) he overſhoots; And in his ſecond diviſion (for the time under the Law) he is too ſhort; imitating a

bad archer, who tries, but cannot hit the mark.

If then for the time paſt the Rabbin is found to be faulty, why ſhould we be ſo mad as to give credit to him for the time which is yet to come? Queſtionleſſe as he hath deceived us in the one, ſo likewiſe he will deceive us in the other; and therefore he is to be ſlighted and nothing credited at all. Yea ſaith[b] one, *Dictum Eliæ non eſt authenticum. Valet quidem adverſus Judæos (qui vaticinium illud admittunt) ad probandum veniſſe Meſſiam, cùm jam elapſi ſint anni quinquies mille & 560: ſed ad finem ſeculi demonſtrandum nihil valet.* That is, The ſaying of Elias is not authentick. It maketh indeed againſt the Jews (who entertain that prophecie) to prove that the Meſſias or Chriſt is come, ſeeing there are[c] 5560 yeares of the 6000 alreadie runne out: but it prevaileth nothing to ſhew the end of the world, for which cauſe it was chiefly intended.

b *Zanch. Tom.* 7. *Prælect. de fine ſeculi.*

c Note that the yeares from the Creation are now many more.

But come we now to the examination of that forenamed place in Peter, which is brought as an help to uphold the Jews opinion, becauſe a day taken for a thouſand yeares, and applied to the weekly dayes, ſeemeth to point out ſix thouſand yeares: ſo ſome imagine. But without doubt the Apoſtle meant no ſuch thing; nor yet had in his minde to ſet down any ſtrict manner of accounting times, peculiar to the court of heaven: For mark but the circumſtances of the place, and view well the occaſion given him to ſpeak ſo as he did of the Lords coming to judgement; and then you ſhall ſoon finde, that it was to comfort the godly againſt the cavils and reproaches of the wicked; who, becauſe the time ſeemed long to them, did thereupon mock at the promiſe of his coming, taking it as if he would not come at all. For, *Where is* (ſay they) *the promiſe of his coming? ſince the fathers fell aſleep, all things continue as they did from the beginning,* &c. Which is as if they ſhould ſay, Is it not a 2. Pet. 3. 4.

great while ſince the world began, and yet what alteration can we ſee in it? yeſterday was as is this day: men are born and die as orderly as they ever did: nature keeps her courſe, and the like: Wherefore if the Judge had meant to come or ſhew himſelf at all, he would not ſurely that his coming ſhould be thus long deferred, but would rather have ſhewed himſelf before thus many yeares could poſſibly be born. Thus, or after this manner, ſuch mockers reaſoned and cavilled with S. Peter: which cavill of theirs is agreeable to that of S. * Paul, where he mentions ſuch as did not beleeve the Reſurrection, but were like minded with theſe who mocked at the ſlackneſſe of Chriſts coming to judgement.

* 1. Cor. 15. 12.

Saint Peter therefore, that he might † comfort the weak and confute the wicked, ſheweth how to anſwer this their faithleſſe objection; namely thus, That although the time be long in reſpect of us, yet to God (with whom there is no time either long or ſhort) it is not ſo. A day compared with an houre, to us may ſeem long: But a thouſand yeares compared with a day, to God they ſeem but ſhort; for what is time to eternitie? And therefore, although that day to the faithleſſe ſeems ſo to be taken away, or deferred rather, as if it were not, or would not come becauſe it quickly came not; yet know that it is not quite taken away. For (as the ſame Apoſtle ſpeaketh at the 9 verſe) *God is not ſlack in his promiſes as ſome account ſlackneſſe; but is long-ſuffering to us-ward, not willing that any ſhould periſh, but that all ſhould come to repentance.* And this (queſtionleſſe) was the Apoſtles meaning, farre differing from their fancies who from hence would fain gather that for one day God uſeth to account a thouſand yeares, and a thouſand yeares for one day. *Hic ſermo* (ſaith [d] one) *eſt de æſtimatione hominum, qui non æquè æſtimant tempus longum & breve.* This ſpeech is according to the eſtimation of men, who

† It was but to ſhew (ſaith S. Auguſtine) *contemnendam futuri temporis brevitatem.*

d *Marlor. in Pet.*

who do not equally eſteem of times long and ſhort.

Which alſo doth yet further appeare by that in the 90 Pſal. at the 4 verſ. Where, as there is a compariſon likewiſe between 1000 yeares and one day; ſo alſo, in reſpect of God, a thouſand yeares are compared to that which is leſſe then a day, namely to a watch in the night. For (ſaith the Prophet) *God turneth man to deſtruction, and then he ſaith, Turn again ye children of men. For a thouſand yeares in thy ſight are but as yeſterday, and they are gone as a watch in the night.* To which purpoſe S. *Hierome* ſpeaketh alſo fitly, ſaying, *Æternitati comparatum omne tempus eſt breve*; that is, All time compared with eternitie is but ſhort time, yea indeed as no time. And again, did not *Zanchius* worthily finde fault with *Ireneus* and *Lactantius* concerning theſe things? Undoubtedly he did; affirming that their opinion was contrary to the word of God: For our Lord himſelf ſaith, that none can know, &c. Whereas (ſaith he) if this ſentence of the 6000 yeares were true, then the time might be known.

Hierome on Jer.

Zanch. Tom. 7. Prælect. de fine ſeculi.

Let therefore they, who will, embrace this fancie of ſix thouſand yeares for the whole time of the worlds continuance; I cannot: For ſure I am, that the tradition of Elias hath greatly failed for the time that is paſt: if therefore it ſhould be true for the time which is yet to come, it were more then an unheard of wonder: and as for the argument taken from S. Peter to uphold it, how his meaning hath been thereby forced, is declared.

Yet neverthleſſe I will not deny but that the world may ſtand ſix ages before it endeth; and ſo the ages, although not the yeares, may be compared to the ſix dayes of weekly labour: and that the ſeventh age ſhall begin at the reſurrection, as was figured in Henoch the ſeventh from Adam, who died not as did the ſix before him, but was taken up into heaven. Unto this I aſſent as probable. But that each age ſhould have a thouſand yeares, is ſtill denied;

The World hath ſix Ages, but not reckoned by thouſands of yeares.

denied; and as in ſetting them down according to Scripture will be manifeſt.

The firſt is from the creation to the floud: and this by S. Peter is called the old world, 2. Pet. 2. 5.

The ſecond is from the floud to Abraham.
The third, from Abraham to David.
The fourth, from David to the captivitie.
The fifth, from the captivitie to Chriſt.
} Matth. chap. 1.

The ſixt is the time after Chriſt; called in many places the laſt age, and the laſt of times: as in Hebrews, chap. 1. 1. *God* (ſaith the Apoſtle) *who at ſundry times and in divers manners ſpake unto the fathers by the Prophets, hath in theſe laſt dayes ſpoken to us by his Sonne.* And again, S. Peter calls this the laſt of times, 1. Pet. 1. 20. S. John alſo ſaith, *Little children, it is the laſt time,* 1. John 2. 18.

Theſe I grant to be the ſix ages of the world: but who is ſo mad as to ſay or think that there were juſt thouſands of yeares betwixt each or any of them? The Septuagints make more then thouſands between ſome of them: and the Hebrews, they make leſſe; excepting the firſt age. Yet if you will know their lengths according to that which is none of the worſt accounts, take them thus: and this account I may afterwards prove in another work.

The firſt hath 1656 yeares.

The ſecond (if we end it at the beginning of Abrahams peregrination and giving of the promiſe) hath the juſt number of 422 yeares.

The third (if we end it at the death of Saul and beginning of Davids kingdome after him) containeth the number of 866 yeares.

The fourth (if we begin the captivitie in the firſt yeare of Nebuchadnezzar) hath 448 yeares.

The fifth containeth the length both of the Chaldean, Perſian, and Grecian Monarchies; together with ſo

much of the Roman greatneſſe as was paſt before Chriſt came into the world: amounting in all to the ſumme of 605 yeares, or thereabouts; although we reckon no further then the birth of Chriſt. But go rather to his baptiſme, and then this age is 634, &c.

The ſixth and laſt hath ſo many yeares as are from the time of mans redemption untill now: for hitherto this age hath continued, and ſhall not be ended untill the * laſt trumpet be blown, and *Surgite mortui, venite ad judicium*; Ariſe you dead, and come to judgement, be ſounded in our eares. * 1. Cor. 15.52. Revel. 10.5,6.

To which purpoſe, divine *Du Bartas*, that noble Poet, brings in our father Adam, ſpeaking of theſe ages thus: ſetting them down, as if the ſpeech had been uttered by him to his ſonne; ſaying, Du Bartas in the handy-crafts.

The Firſt begins with [1] me: the Seconds morn 1 Adam.
Is the firſt [2] Ship-wright, who doth firſt adorn 2 Noah.
The hills with vines: that [3] Shepherd is the Third, 3 Abram.
Who after God through ſtrange lands leads his herd,
And (paſt mans reaſon) crediting Gods word,
His onely ſonne ſlayes with a willing ſword.
The Fourth's another valiant [4] Shepherdling, 4 David.
That for a cannon takes his ſilly ſling,
And to a ſcepter turns his ſhepherds ſtaff;
Great Prince, great Prophet, Poet, Pſalmograph.
The Fifth begins from that ſad [5] Princes night 5 Zedechiah, or the captivitie.
Who ſees his children murdred in his ſight;
Or from poore Judahs dolefull heavineſſe,
Led captives on the banks of Euphrates.
Hoped [6] Meſſias ſhineth in the Sixt; 6 Chriſt.
Who, mockt, beat, baniſht, buried, crucifixt
For our foul ſinnes, (ſtill ſelfly-innocent)
Muſt fully bear the hatefull puniſhment.
The [7] Laſt ſhall be the very reſting-day; 7 The eternall ſabbath.
Aire ſhall be mute, the waters works ſhall ſtay;

The earth her ſtore, the ſtarres ſhall leave their meaſures,
The ſunne his ſhine: and in eternall pleaſures
We plung'd, in heaven ſhall aye ſolemnize all
Th' eternall ſabbaths endleſſe feſtivall.

Thus farre *Du Bartas.*

But from hence I proceed; and on the ſudden I have met ſome other ſorts of calculatours. For ſo various are mens ſearching heads, that theſe things have not onely been boulſtered out by Rabbinicall traditions, ſabbaticall ſymboles, and the like; but alſo by ſundry other fancies.

Some have pretended revelations, and thereby deluded many. Amongſt whom learned [e] Gerard makes mention of a certain woman of Suevia in Germanie, who was called *Thoda*; & ſhe, in the yeare of Chriſt 848, propheſied that by the apparition of an Angel it was revealed unto her, that the world ſhould end that very yeare. After whom there were others as true prophets as her ſelf: namely in the yeares 1062, 1258, 1345, 1526, 1530, &c. He in the yeare 1526, ran up and down the ſtreets, in the citie of S. *Gallus* in *Helvetia*, crying with horrid geſtures, that the day of the Lord was come, that it was preſent. And he in the yeare 1530, did ſo ſtrongly prevail with ſome, that he perſwaded them the laſt yeare of the world was come; whereupon they grew [f] prodigall of their goods and ſubſtance, fearing that they ſhould ſcarcely ſpend them in ſo ſhort a time as the world was to continue. But this ſurely was an Anabaptiſticall trick, and a chip of that block which maketh all things common; boaſting of viſions and dreams in an abundant manner.

Others have pitched upon certain Mathematicall revolutions, and thereby conſtituted a time: amongſt whom *Joannes Regiomontanus* is ſaid to be one, who partly thought that the yeare 1588 ſhould adde an end to the world;

[e] *Ger. loc. com. Tom. 9. pag. 182.*

Impoſtours and falſe Prophets concerning the worlds ending.

[f] *Ibid. ut antea.*

world; becauſe at that time was a great conjunction of Saturn, Jupiter, & Mars. Upon which occaſion I remember theſe verſes,

Poſt mille expletos à partu Virginis annos,
Et poſt quingentos rurſus ab orbe datos,
Octogeſimus octavus mirabilis annus
Ingruet; is ſecum triſtia multa trahet.
Si non hoc anno totus malus occidet orbis,
Si non in nihilum terra fretúmque ruent;
Cuncta tamen mundi ſurſum ibunt atque deorſum
Imperia: & luctus undique grandis erit. That is,

When from the Virgins*birth a thouſand yeares
With full five hundred be compleat and told,
The Eightie Eighth a famous yeare appeares,
Which brings diſtreſſe more fatall then of old.
If not in this yeare all the wicked world
Do fall, and land with ſea to nothing come;
Yet Empires muſt be topſie turvie hurl'd,
And extream grief ſhall be the common ſumme.

* Or from the time of Chriſt born of a Virgin.

Which what it was, the event hath ſhewed.

Others again dream of ſecrets in Cabaliſticall concluſions.

Some ſubſcribe to Analogies taken from Jubilees, or from the yeares of Chriſts age, and the like.

Yea, and to omit many, ſundry others have their tricks and devices in Arithmeticall numbers, whereby they can directly calculate the time, and make the ſuperſtitious multitude admire them, and lend a more then greedie eare to their feared predictions.

A crotchet to ſhew that the world muſt end in the yeare 1657; which is 24 yeares hence.

Such a one was he, who out of theſe words, MUNDI CONFLAGRATIO, which ſignifie *The burning of the world*, hath ſet down the time when the world muſt end; namely in the yeare of our Lord, 1657: and that for two reaſons. Firſt, becauſe as the yeare of the world 1657 was a fatall yeare, in regard of the

univerſall

univerſall floud, which then came and drowned all the world: In like manner the yeare of Chriſt 1657 ſhall alſo be a fatall yeare, in regard that then ſhall be the end of the world by fire: for is it not ſaid in Matthew, *As it was in the dayes of Noah, ſo ſhall alſo the coming of the Sonne of man be?* Matth. 24. 37.

Secondly, take theſe two words, namely, MUNDI CONFLAGRATIO, which ſignifie in Engliſh *The burning of the world*, and you ſhall finde in them ſo many numerall letters as will make 1657, if they be all added together; as in the margent may be plainly ſeen. For in the firſt word [MUNDI] there are M, V, D, and I; which are all numerall letters: and in the other word, namely CONFLAGRATIO, C, L, and I, are likewiſe letters of number; and how much every one of them doth ſignifie is eaſily known: amounting in the whole ſumme to 1657.

MVnDI ConfLagratIo
1000 M
5 V
500 D
1 I
100 C
50 L
1 I
1657.

Thus, upon theſe two fancies, is this prediction grounded: which that it is altogether idle may eaſily appeare.

For firſt concerning the univerſall floud which they urge; that yeare was indeed a fatall yeare to the world when it came: but that it came in the yeare of the world 1657, is denied: for it came, not when Noah was 600 yeares compleat; but when he was in the ſix hundredth yeare current of his age: and ſo the yeare of the world was not 1657, but 1656. As for example;

Seth was born to *Adam*, when he was	130. Gen. 5. 3.
Enos to *Seth*, when he was	105. Gen. 5. 6.
Kenan to *Enos*, when he was	90. Gen. 5. 9.
Mahalaleel to *Kenan*, when he was	70. Gen. 5. 12.
Jared to *Mahalaleel*, when he was	65. Gen. 5. 15.
Henoch to *Jared*, when *Jared* was	162. Gen. 5. 18.
Mathuſelah to *Henoch*, when *Hen.* was	65. Gen. 5. 21.
Lamech to *Mathuſelah*, when *Ma.* was	187. Gen. 5. 25.

Noah

Noah to *Lamech*, when *Lamech* was 182. Gen. 5. 29.
Then came the floud in the yeare of *Noah* 600. Gen. 7. 11
All which do make (being added together) 1656, and not 1657, as they imagine: becauſe that which is ſaid of *Noah* in Gen. chap. 7. verſe 6. viz. that he was 600. yeares old when the floud of waters was upon the earth; is expounded in two ſeverall places after it, that it muſt be underſtood of his 600 yeare current, and not compleat. The places are Gen. 7. 11. and Gen. 8. 13; the one expreſſing the beginning, the other the ending of the floud: and ſo alſo the moſt and beſt chronologers hitherto have obſerved, although ſome do not.

Which, as it is agreeable to the truth of computation, ſo alſo (that I may anſwer one fancie by another) it is more congruous to the nature of the number of the yeare wherein it came: For *Six* is no number of reſt; witneſſe the ſix dayes of creation, the ſix dayes of our weekly labour, and the ſix ages of the world. But *Seven* is for reſt; witneſſe the ſabbaticall dayes, the ſabbaticall yeares, and that eternall ſabbath in the heaven of heavens, when the ſix ages of the world ſhall be ended.

Wherefore, in the yeare of the world 1656, the Ark was without reſt, and toſſed upon the waters: but in the yeare 1657, it found reſt; the waters were dried up and gone; and Noah then came out and offered ſacrifice.

And further, admit it be ſaid, that *As it was in the dayes of Noah, ſo ſhall alſo the coming of the Sonne of man be*: Doth this point out any thing concerning the time of his coming? Verily no. It ſhews indeed the great ſecuritie that ſhall then be in the world amongſt the wicked: ſo that as the floud came upon the old world when they feared nothing; in like manner ſhall the coming of the Sonne of man be. But what is this to the time? Our Saviour doth not compute the time, but compares the manners of the times together; as may be very

plainly ſeen by that which he hath elſewhere publiſhed, ſaying, that *the coming of the Sonne of man ſhall be*, not onely *As it was in the dayes of Noah*, but alſo *As it was in the dayes of Lot*, Luke 17.28.

For concluſion therefore, ſeeing the floud came before that yeare which they have computed, it may eaſily appeare that their *Mundi conflagratio* for the end of the world in the yeare of Chriſt 1657, is but an idle fancie. And as for the time which they referre to the dayes of Noah, we ſee that it is likewiſe referred to the dayes of Lot: the intent onely being to compare the times, and not compute them.

But ſecondly for their *Mundi conflagratio*; admit it were ſo that the floud did not come untill the yeare of the world 1657 (as they would have it) yet why ſhould it be that theſe numerall letters muſt be picked out of two Latine words rather then out of words in ſome other language? In Greek it is Κόσμȣ συμφλεγματία; out of which words you may gather 1830 at the leaſt.

Surely in this we may ſay, that as in the making of anagrams upon a name, if one language will not help us, we may then write the name in ſome other tongue rather then want letters for our purpoſe: ſo the ſame libertie (belike) he took who was the firſt authour of this fancie for the worlds ending: wherefore we may well conclude that it is but idle and not worth regarding.

Another (much like to this) is that which others have alſo hatched; whereby in the yeare of Chriſt 1645, ſhould be the end of the world.

Another crotchet, whereby the world ſhould end in the yeare 1645; which now 12 is yeares hence.

Now this they gather out of theſe words, ADVENTVS DOMINI, which ſignifie *The coming of the Lord*; for in them they have ſo many numerall letters as will make 2012: out of which they ſubtract ſo much as they gather out of theſe words, DIES ABBREVIABVNTVR, *The dayes ſhall be ſhortened*; namely 517: and then the remainder

der of 2012 is 1495: unto which they adde ſo many as theſe words will afford, viz. PROPTER ELeCTos, which ſignifie *For the elects ſake*; wherein is a number of 150; and ſo the whole ſumme amounteth to 1645, being (as they fondly imagine) the laſt yeare of the world.

But if ſuch or the like fancies could hold, then (queſtionleſſe) the world ſhould have had many endings ſince it firſt began; and muſt either have had a new creation, or elſe no world had been till now.

The former opinion confuted.

As for example, either in the yeare 1532, or in the yeare 1533, or in the yeare 1578, or in the yeare 1588, or in the yeare 1623. the judgement day (upon theſe grounds) was foretold to come. For firſt, in the yeare 1532, they had two wayes to prove it; either out of theſe words, VIDeBVNT IN QVEM PVPVGERVNT; or out of theſe words, VIDeBVNT IN QVEM TRANSFIXeRVNT; which ſignifie, *They ſhall look on him whom they pierced*; the numerall letters being in either of theſe ſo many as will make 1532. Secondly, for the yeare 1533, they had this falſe proof, binding ſtill upon numerall letters, which they gathered out of theſe words, IeSVs NAZARENVs ReX IVDæoRVM, *Jeſus of Nazareth king of the Jewes*; here being ſo many as will make 1533. Thirdly, for the yeare 1578, thus it was: viz. they take theſe words, ADVeNTVs DoMInI, and in them they have 2012; out of which number they ſubtracted 517, which they gathered from DIeS ABBREVIAeVNTVR; and then the remainder makes 1495: unto which they adde the number of the letters [*a,e,n, t,s,*] in *adventus*, which were not numerall before, yet by their naturall poſition in the alphabet or croſſe-row they give 56: then again by the ſame reaſon they take 27 out of [*o* and *n*] the non-numerall letters in the word *Domini*; both which numbers being added to 1495, do make 1578. Fourthly, for the yeare 1588, the manner

John 19. 37.

Vide Buchol. chron. anno Dom. 1533.

manner of calculating is as before for the yeare 1645; unto which number having raiſed their ſumme, they ſubtract [*a, e, n, t, s,*] viz. 56: and ſo they have 1587 yeares, which they reckon compleat, and referre their prediction to the beginning of the yeare 1588. *Vide Gerardum in locis communibus, pag.* 185. *Tom.* 9. Fifthly, for the yeare 1623, thus was the fancie, IVDICARE VIVOS & MORTVOS, *To judge the quick and the dead*: Now here (as before) they were led by numerall letters, having ſo many as would make 1623, in which yeare they dreamed of the worlds ending. Now theſe times we know are paſt long ſince, but the event you ſee hath not anſwered to the propheſie. Things therefore of the like nature being yet to come, and built upon the ſame grounds, cannot but prove as falſe.

Vide Dieter. poſt Dom. 2. adven.

But what need many words be ſpent about the confutation of ſuch idle dreams and fooliſh fantaſies? Surely, that great and terrible day of the worlds ending, is a thing of greater moment then that it ſhould be thus dallied with. Let not therefore the quinteſſence of wit expoſe us to ſuch impudent folly: For although it may ſomewhat pleaſe us in ſhew; yet, when the beſt is made of it that can be, it will be proved, not onely the doting froth of a wittie brain, but alſo a ſuperſtitious and an heatheniſh vanitie.

I have ſeen a world of fancies more upon this ſubject, eſpecially ſuch as may be taken out of [g] *Cuſa*, who was made Cardinall under *Pius* the ſecond: But ſeeing they are as idle as the former, and built upon as falſe grounds, I ſcarce hold them worth the anſwering.

Yet (having come thus farre) let me go a little further, becauſe in the next place I hope to meet ſome wiſer men; granting (as indeed they ought) that the preciſe day and houre of the worlds ending cannot be known: yet they would not have any to be ſo [h] baſe of judgement,

g See Treaſ. of ancient and modern times, l. 4. cap. 20.

h Napeir on the Revelat. Prop. 14 where he determines the time to be betwixt the yeares 1688, and 1700; naming either the yeare 1697, or 1699.

as

as to conclude thereby, that an apparent length of this laſt age may not be found; or that ſeemingly between ſuch and ſuch yeares the judgement day ſhall not be known to come: For is it propheſied? and why are propheſies, if they either may not,or cannot be underſtood? It is recorded in Matth. 24.15. *Let him that readeth, underſtand.* It is ſaid Dan. 12.10. *None of the wicked ſhall underſtand, but the wiſe ſhall underſtand.* And Revelation 1.3. *Bleſſed is he that readeth, and they that heare the words of this propheſie, and keep thoſe things which are written therein: for the time is at hand.* And Dan. 12.4. it is ſaid, that theſe things towards the end ſhall be unſealed: for *many ſhall runne to and fro, and knowledge ſhall be increaſed.*

Now here I may anſwer, that although ſome underſtand the foreſaid texts to have relation to the times towards the worlds ending,yet there be no[i] few who contradict it; affirming that what they alledge out of Daniel was accompliſhed about the time of *Antiochus*: and that by *running through* (which ſome reade *running to and fro*) is meant the diligent peruſing of the book: namely, that though at the firſt it were not regarded, yet many in time to come ſhould give their mindes unto it: being (as *Polanus* expoundeth) thus to be underſtood, that in the great perſecution under *Antiochus*, many ſhall be found faithfull, who ſhall cleave unto this propheſie: And as for the wicked not underſtanding it, we muſt apply it unto the falſe brethren which ſhould be in thoſe dayes of perſecution, and give way unto *Antiochus* his wicked proceedings; labouring to ſeduce and betray their brethren; and they themſelves living without any care to obſerve the accompliſhment of this propheſie, never comparing the event with the thing propheſied: For (as was foretold, Dan. 11. 34.) *many ſhall cleave unto them fainedly*, &c. And for *ſealing it up unto the end*,

[i] See Jun. Calv. Polan. or Dr. Will. Hexap. on Dan.

is meant the not making it too common on the ſudden, becauſe from the time of theſe viſions untill the dayes of *Antiochus* were about 300 yeares. In which regard it is ſaid concerning that other propheſie of the Revelation, that it muſt not be ſealed up, becauſe the time was at hand, Revelat. 22. 10. Yea ſome part of it was not onely preſently to take effect, but even then in act, chap. 1. verſe 19. And as for that in Matthew, it hath relation unto the deſtruction of Jeruſalem under *Titus* and *Veſpaſian*.

Or ſecondly, be it ſo that I do not altogether condemne this their inquirie, becauſe I verily think that a modeſt and religious ſearch into theſe myſteries may ſee very farre: yet nevertheleſſe, ſeeing interpretours of ſuch myſteries are not (as yet) at one among themſelves, eſpecially in their Synchroniſmes and periods of time; it cannot be denied but that even in them there is much matter of doubt (although they ſtand upon better grounds then *Heſychius* did, whom S. *Auſtine* [k] confuted:) ſo that it is hard to ſay when ſuch a time appeares indeed to be. And further, were it ſo that we had perfect Synchroniſmes of all things propheſied in the Revelation (for that propheſie doth moſt concern the end) and knew how to link them together; yet if we erred in the true placing of our firſt link, it muſt needs be that the end of our reckoning either fall ſhort, or elſe overſhoot that period, which otherwiſe might point out an apparent time, if not directly of the worlds ending, yet of ſuch propheſies as ſhall be fulfilled before it endeth: (for perhaps that which ſome take to be the apparent time of the worlds ending, may as well be taken for the time wherein other things propheſied ſhall be accompliſhed) but how long the end ſhall be after them, is unknown. We know that the ſeventh Trumpet ſhall give an end to all, becauſe when that

k *Auguſt. Epiſt.* 80 *ad Heſych.*

that ſeventh Angel came and ſtood upon the ſea, and upon the earth, he lift up his hand and voice to heaven, ſwearing ſolemnely by him who liveth for ever, ὅτι χρόνος οὐκ ἔτι ἔσαι, *Time ſhall be no more:* but we do not know whether the ſpace of time allotted for that Trumpet be either long or ſhort. The Trumpets before it had time allowed them; and what time this laſt ſhall have, the event will beſt diſcover. Revelat.10.6.

Wherefore I do well perceive, that it is no eaſie thing to finde an apparent length of this laſt age any long while before it endeth, unleſſe we could be directly certified of the utmoſt periods of all the Trumpets; or knew the times of the ſeven Vials, which by ſeven Angels were to be poured out. The beſt and onely way is alwayes to watch, and to be evermore ready either for death or judgement: For certainly when that time comes, pure hearts (as *Bernard* ſpeaketh) ſhall prevail more than ſubtill words; good conſciences, better then full purſes; becauſe the Judge will not be deceived with words, nor moved with gifts: neither is it poſſible that any ſhould avoid him; for all ſhall be ſummoned to appeare before him. To which purpoſe *Du Bartas* deſcants thus,

Thoſe that were laden with proud marble tombes,
Thoſe that were ſwallow'd down wilde monſters wombes,
Thoſe that the Sea hath drown'd, thoſe that the flaſhes
Of ruddy flames have burned all to aſhes,
Awaked all, ſhall riſe, and all reveſt
The fleſh and bones that they at firſt poſſeſt.
„*But ſome muſt* Juſtice, *ſome muſt* Mercie *taſte*;
„*Some call'd to joy, ſome into torment caſt.*

CHAP. II.

Shewing, in what part of the yeare the world was created.

Sect. 1.

Of three opinions concerning the time of the worlds beginning, with a confutation of the firſt.

IN the account of Times, it is very neceſſary that there ſhould be a propoſed point or mark, from whence every reckoning may take beginning; that thereby the yeares which have ſeverall times of beginning, may the more truely be computed and compared amongſt themſelves. Wherefore it cannot be amiſſe to ſet down the moſt probable conjectures concerning the yeare wherein the world began; eſpecially ſeeing amongſt Chronologers it is uſuall to referre their accounts either to the yeare of the worlds Creation, or to the birth of Chriſt.

And now, concerning this, there be chiefly three opinions.

1. Some imagine that the world was created in the very time of the Summer Solſtice, and that in the beginning of time, the Sunne entring into *Leo*, gave beginning to the yeare.

2. Others referre it to the Spring, when the Sunne entred into *Aries*.

3. And in the laſt place 'tis ſuppoſed, that the world

was made in Autumne, when the Sunne entred into *Libra*. Of all which I purpoſe to diſcourſe ſeverally, and to ſhew the beſt reaſons for that which I think to be the trueſt time.

The firſt is an opinion maintained by *Mercator*, and (as is thought) was firſt hatched among the Prieſts of Egypt, who, obſerving the river *Nilus* to overflow about the Summer Solſtice, adored it for a God, eſteeming the time of its inundation for an infallible beginning of divine actions in things created; and thereupon, for the beginning likewiſe of the yeare at the time of the worlds creation.

But if this were the onely cauſe, we may not unfitly ſay, that it was folly and ſuperſtition which firſt ſet this opinion abroach; and therefore he is worthy of blame who will go about to maintain it. And although *Mercator* in his Chronologie ſeems to alledge ſome other reaſons, thereby to uphold his ſhare in it; yet his chief reaſon is not ſufficient; for it is grounded upon that which is not granted; *viz.* that the Floud ſhould end about *July*; becauſe in the eleventh moneth, which he ſuppoſeth to be *May* or *June*, when the Olive beginneth to put forth, the Dove brought green Olive leaves unto Noah into the Ark.

To which it is anſwered, That the word in Gen. 7. 11. which he taketh to ſignifie *green leaves*, may (as expoſitours witneſſe) as well be taken for *branches*; even ſuch as have been uſed to make Bowers with: which (according to the tranſlation of the Septuagint) is expreſſed by a word ſignifying a dry ſtalk. And ſo ſaith that † Doctour, in his Hexapla upon Geneſis, chapter the firſt, queſtion the 17, that the word in the originall is *Gnalce*, which (as S. Hierome tranſlateth it elſewhere) ſignifies the branches of Olives: and in the Septuagint it is κάρφος, a ſtalk without leaves.

† Dr. Willet.

 That

That therefore which the Dove brought, might be ſome branch of the Olive tree rather then the leaves; and ſo might the Floud end at the dead time of the yeare, rather then when things were freſh and flouriſhing.

But admit that the ſtalk or branch had leaves on it, yet it proves not that it was about *May* or *June*, when the Dove found and brought it; becauſe it is recorded of the Olive, that ſhe loſeth not her leaves as other trees doe, but is green and flouriſhing all the yeare. Such leaves therefore as it had before the Floud, it might have after the Floud: for if they were new ones, they muſt needs ſpring out in ſeven dayes, becauſe the Dove was ſent out but ſeven dayes before, returning then as a creature diſconſolate, not finding any thing at all.

Plin. lib. 16. cap. 20.

Sect. 2.

A ſecond opinion is, that the world began at the Spring.

ANother opinion is, that it was created in the Spring, and that the Sunne (who is the Index of time, by whoſe revolution we account our yeares) began his courſe in *Aries*.

The moſt forcible reaſons to uphold this opinion, are theſe.

Firſt, the naturall beginning of the yeare was in the Spring time, becauſe Noah entred into the Ark the firſt moneth; and after a yeare, about the end of the ſecond moneth, he came forth of the Ark again, Gen. 7. 8. Now the firſt and ſecond moneths here mentioned, agree not to Autumne; becauſe if Noah came out of the Ark at that time of the yeare, he could not then provide himſelf with victualls for thoſe creatures which were with him againſt the next yeare, by reaſon that the Harveſt time was then paſt, and Winter coming on: ſo that the yeare naturally began in the Spring time, and not in Autumne.

Secondly,

Secondly, it is likely that the world took beginning at ſuch a time when things were growing more and more to perfection, as in the Spring; rather then when they were decreaſing, as in Autumne.

Thirdly, it is no weak aſſertion to affirm that the world was created about that time of the yeare when by the ſecond Adam it was redeemed; which was not in Autumne, but in the Spring.

Fourthly, the children of Iſrael coming out of Egypt were commanded to begin their yeare at *Abib*, called afterwards *Niſan*; which moneth agreeth partly to our *March*, and partly to *April*. [See Exodus chap. 12. verſe 1; and chap. 23. verſe 15.] Now by this command it is like that they were onely put in minde of their ancient cuſtome which was in uſe amongſt their Anceſtours, and loſt by them, ſince their going into Egypt, and death of the Patriarchs: For when the twelve Patriarchs, the ſonnes of Jacob, were dead, they of their poſteritie learned the cuſtomes of Egypt, and ſo came to change their yeare from the Spring to Autumne: But when Moſes brought them out from among the Egyptians, they had a command to reckon the beginning of their yeare from Autumne no longer, but from the Spring, beginning (as hath been ſaid) in the moneth *Abib* or *Niſan*. Now this is chiefly grounded upon that which Moſes writeth concerning the order of the moneths in the hiſtorie of the Floud: For by that it appeareth, that the ancient form of the yeare was no other then what was obſerved from the times of Moſes when he wrote his hiſtory, untill the end of the old Teſtament, and afterwards. Conſider therefore the order of the moneths which was before the coming out of Egypt (I mean that order ſpecified in the hiſtorie of the Floud) and compare it with that order which God gave Moſes command to put in practiſe, and ſee if it be not the ſame. So that as Moſes

reckoned

reckoned the firſt, ſecond, third, fourth, fifth, &c. from *Niſan*, which began in the Spring; in like manner did *Noah*: for where can it be ſhewed in any place of Scripture, when the moneths are reckoned in their orders, that they take beginning from any other time?

And thus theſe are the chief reaſons to uphold this opinion that the world ſhould take his beginning at the Spring time of the yeare, at the Vernall Equinox, the Sunne entring into *Aries*, rather then at any time elſe.

Sect. 3.

A third and beſt opinion is, that the world began in Autumne.

BUt, if they be well weighed, I rather think that thoſe, who in the third place imagine that it was in Autumne, are neareſt the truth.

An anſwer to their firſt reaſon who place the creation in the Spring.

For firſt in the deſcription of the floud, it is true indeed that the firſt and ſecond moneths there mentioned, are meant the firſt and ſecond moneths of the yeare: but that they muſt take their beginning from the Spring, rather then from Autumne, I cannot be perſwaded. Firſt, becauſe *Joſephus* (who wrote the Antiquities of his own nation) in his firſt book and 5 chapter writeth thus, viz. that the ſecond moneth, being the moneth wherein the floud came, was called by the Hebrews *Marheſuvan*, and by the Macedonians, *Dyo*; both which moneths agree to that part of the yeare wherein our *November* falleth, and not *April* or *May*. Secondly, becauſe the Chaldee Paraphraſt begins the ancient yeare of the Jews from Autumne, as afterwards ſhall be ſhewed.

And further, whereas it is ſaid, that if Noah were to go out of the Ark when the yeare was ſo farre ſpent, he muſt needs want food for thoſe creatures which were with him; I anſwer, that it follows not.

* Viz. the firſt day. Gen. 8.4, 5.

For firſt, the mountain tops appeared by the * beginning of the tenth moneth, which was (according to

our Julian account) about the end of *May*, or beginning of *June*, although the head of the yeare be accounted but from Autumne: ſo that if the waters began to aſſwage ſo ſoon, then ſurely all the montanous places were flouriſhing with their fruits and herbs, by ſuch time as Noah came out of the Ark; which (queſtionleſſe) he might then gather to feed thoſe creatures that were with him.

Neither ſecondly doth the temperature of the climate wherein the Ark reſted, afford ſuch a rigid winter, but that Noah might ſow ſome kinde of grain, ſuch as might afford him food againſt the next yeare, if need were; and ſo both himſelf and other creatures with him might be preſerved and kept alive.

But what need I ſpeak of Noahs providing for himſelf, or them? ſeeing to the beaſts, fowl, and the like, their diſmiſſion from the Ark was enough; eſpecially there being but a few of every kinde.

And as for himſelf and his familie (who were but eight perſons) they had libertie given them by Almighty God to eat of any living * creature whatſoever, as well as of the green herb. And therefore their firſt reaſon on the contrary contending to prove the worlds creation in the Spring rather then in Autumne, is not ſo forcible as they imagine it.

* Gen. 9. 3.

But let me illuſtrate the matter yet more fully, and in ſo doing I cannot omit what * *Calviſius* urgeth for proof of the ſame tenent. Thoſe (ſaith he) who would have the time of the creation in the Spring rather then in Autumne, uſe this for one of their chiefeſt reaſons. *Dic mihi, inquiunt*, &c. Tell me (ſay they) if the world were created in Autumne, and that Noah, with thoſe living creatures which he kept alive, did then or at that time of the yeare come out of the Ark, how could they be ſuſtained, the yeare being ſo farre forth ſpent? what? muſt they

* *Calviſ. chron. cap. de temp. mundi condit.*

hunger for the ſpace of a whole yeare, or live with nothing, feeding, like Cameleons, on the aire? &c.

To which he anſwereth, that theſe men ſpeak, as if for their ſingular wiſdome the Patriarch Noah had made them of his counſell when he carried food into the Ark, becauſe thus punctually they ſeem to know how much of it was left when he came out from thence: which that it was all ſpent, how can they tell? yet neverthel eſſe concerning ſuch creatures as lived ravenouſly by feeding on fleſh, if Noahs old ſtore were gone, I bid (ſaith he) that they take no great care for them, becauſe they had dead carcaſſes enough to feed on. Likewiſe concerning the other kinde of beaſts or cattell, let them not be too ſolicitous; becauſe the mountains, being watered with ſuch a fatting floud, and dried alſo ſince the * fifth moneth before, had now brought forth herbs, graſſe, and young tender ſhoots by which thoſe creatures might eaſily have their lives ſuſtained. Which reaſon of his is very pertinent, either becauſe it makes it appeare that it was poſſible to finde food if all in the Ark were ſpent; or that there might be ſome of the old ſtore ſtill remaining to help ſuch creatures as were leaſt able to help themſelves.

* Or from the tenth to the ſecond moneth. See Gen. chap. 8.

Come we therefore now to the examination of their next reaſon; which is as followeth.

Sect. 4.

An anſwer to their ſecond reaſon who place the creation in the Spring.

SEcondly, whereas they ſay that it is moſt like the world took beginning at ſuch a time of the yeare when things were growing more and more to perfection, rather then when they were decreaſing: anſwer is made, that if we ſtand upon ſuch probabilities for proofs, it is then more like that the world took beginning, not when things were growing to perfection, but when they were in perfection it ſelf, immediately before they began

began to decline; which could not be in their infancie, but in their maturitie; not in the Spring time, but in Autumne. And ſo we finde it even in the hiſtorie of the creation it ſelf: for the trees, as it is ſaid, were made to grow up with their fruits on them; not green, but ripe, as is evident: not onely becauſe they were pleaſant to the eye, but alſo becauſe they were good for food; in which regard they were made even in their very perfection: and ſo God is ſaid to have ſeen them, not onely as they were good, but alſo as they were very good, which was with an approbation of their perfectneſſe, as may be ſeen in Gen. chap. 1. verſe 31.

Gen. 1. 29. and 3. 2.

Yet neverthleſſe we know that the Almightie could have created trees with their ripe fruits on them, as well in that part of the yeare which is our Spring, as in Autumne: but ſurely the courſe of nature once begun was never altered: and therefore, as now they are in their perfection about Autumne, ſo were they then when they were created.

The courſe of nature was never changed.

Sect. 5.

THirdly, whereas it is ſaid that it is very like the firſt Adam was created about ſuch time as by the ſecond Adam he was redeemed; that proveth nothing: the contrary may rather be affirmed: ſo that the time of the fall and the redemption are better ſevered then conjoyned. For ſurely me thinks it is farre more probable that there followed a ſad winter for Adam to bewail his horrid fall in, rather then an acceptable and pleaſant ſummer: for do but grant this (which may not well be denied) namely that Adam fell preſently after his creation, and then tell me what time of the yeare was fitter to expreſſe the time of his fall then Autumne.

An anſwer to their third reaſon who place the creation in the Spring.

For as the trees in Autumne being come to maturitie do then loſe their beautie by the fall of their fruits and

leaves; or as the yeare then ſlides away like the day at the ſetting of the ſunne: even ſo mankinde, as ſoon as he began to be in a perfect ſtate, kept it not, but fell away and loſt his happineſſe: yet as the day is reſtored again by the riſing of the ſunne; and life is as it were put anew into the yeare by the return of the Spring: even ſo at that very time decayed man was again reſtored by the death of Chriſt, who in the Spring-time of the yeare paid the price of our redemption.

The fall therefore of man at the fall of the leaf, and the reſtoring of him at the reviving Spring, do make a more perfect harmonie, then if for their circumſtances of time we ſhould caſt them both into the Spring: for as the death of Chriſt was contrary to Adams fall; ſo the time for the one was contrary to the time for the other: and yet being contrary, both do well expreſſe the nature of each act at either time.

Adam fell ſoon after his creation.

And now, leſt it may be doubted whether Adam fell preſently after his creation, this may be added as a proof.

Firſt, that Sathan was a murderer from the beginning, and therefore he delayed no time to purchaſe mans miſery.

Secondly, it was the ſixth day that man was created, even as on the ſixth day he was redeemed. By which it appeareth that he fell on the very day of his creation. Whereupon * *Theophylact* maketh this obſervation, ſaying, *Sextâ die homo eſt conditus, qui & ſextâ horâ de ligno comedit: Sextâ quoque die & ſextâ horâ Chriſtus cruci eſt affixus. Quâ igitur horâ Dominus hominem condidit, eâdem & lapſum curavit.* By which he meaneth, that as man was formed the ſixth day, and did eat of the tree the ſixth houre: ſo Chriſt reforming man, and healing the fall, was faſtened to the tree the ſixth day and the ſixth houre. And hence alſo came that common ſaying concerning Adam, that * *In one and the ſame day he was formed*

* Upon Matth. chap. 27.

* Broughtons Concent.

formed and deformed, not continuing in righteouſneſſe and true holineſſe untill the Sabbath: for then (as ſome obſerve) he would have performed the ordinances of the Sabbath, which was to have eaten of the tree of life, and ſo have lived for ever, being never guiltie of that fall whoſe ach even yet the ſonnes of Adam feel.

3. And ſurely Moſes making mention of many times, would never have omitted this time of the fall, except it had been preſently after the creation.

4. Beſides, it muſt neceſſarily be granted that Adam fell before ever he knew his wife: otherwiſe Cain had been conceived without ſinne, becauſe preſently after the man and woman were made, God ſaid, *Increaſe and multiplie*; as in Geneſis 1.28. is manifeſt: but it is a thing not to be imagined that Cain was conceived without ſinne; neither is it true that Adam accompanied with his wife untill after he was caſt out of Paradiſe. Eve therefore and Mary may well be compared together; as thus: Eve being a Virgin, hearing the words of the ſerpent, and beleeving them, brought forth death. The Virgin Mary hearing the words of the Angel, and beleeving them, brought forth life. Such is their reſemblance; and it very fitly ſerveth to teach us that the fall was ſoon after the creation.

5. To which purpoſe that place in the nine and fortieth Pſalme, at the 13 verſe, is very congruous, viz. that Adam lodged not one night in honour. For ſo (ſaith Dr. *Willet*) do the words ſignifie, if they be properly tranſlated. As for example, the word (ſaith he) is *lun*, which ſignifieth to lodge or ſtay all night: which by divers of the Rabbins is expounded of Adam who continued not one night in Paradiſe, but fell on the ſelf ſame day of his creation: which for the time of the yeare bears a fit reſemblance with the fall of the leaf, even as on the other ſide the redeeming of him bears a fit reſem-

Hexap. upon Gen. chap. 3. queſt. 31.

blance with the reviving Spring, when he was again delivered from his ſpirituall priſon, like the herbs and plants from their earthly one.

All which conſidered, their argument is but weak to prove the creation of the firſt Adam in the Spring, becauſe the redemption by the ſecond Adam was at the ſame time: for we ſee by an exact and perfect harmonie how thoſe times are better ſevered then conjoyned.

Let us come therefore unto their fourth reaſon now, and ſee the greateſt force it beareth.

Sect. 6.

An anſwer to their fourth reaſon who place the creation in the Spring.

FOurthly, the children of Iſrael coming out of Egypt were bidden to begin their yeare at *Abib* or *Niſan*.

Now they (as hath been ſhewed) who maintain the worlds creation in the Spring, think that the yeare naturally began at that time, and that the Iſraelites by this command were onely put in minde to reſtore again their ancient cuſtome which was in uſe amongſt their anceſtours, before they went into Egypt.

All which is but a meer conjecture: for what authour ever reported that the Egyptians made the Iſraelites forget their ancient cuſtomes? it is written no where but in ſome mens imaginations, and therefore it proveth nothing. In which regard we may be rather confident of the contrary, namely that the yeare was changed, and not renewed: eſpecially if we conſider but of this one thing more concerning the beginning of the Egyptian yeare, which was not from *September*, as the Jews began; but from *July*, or about the Summer ſolſtice, when their river *Nilus* began to overflow. If therefore the Jews had altered the beginning of their yeare that they might obſerve the cuſtomes of the Egyptians and imitate them, why did they not reckon their firſt moneth from the Summer ſolſtice, as did the Egyptians, but rather

from the Autumnall Equinox, as did not the Egyptians? I confeſſe that conjectures in ſome caſes for want of better proof may hold water;but here the caſe is otherwiſe, as evidently appeareth.

Object. But it is objected, that the Chaldeans reckon the beginning of their yeare from the Spring; and from whom did they learn their cuſtomes but from the ancient Hebrews? wherefore the Hebrews of old time began their yeare from the Spring, and not from Autumne.

Anſw. The Chaldee Paraphraſt mentions no ſuch thing, but plainly affirms the contrary; ſhewing that that moneth which after the coming out of Egypt was the ſeventh moneth, had in former times been the firſt moneth. This that authour affirmeth; then which what can be more plain?

Object. But it is further objected, that the order of the moneths in the hiſtory of the Floud makes it appeare otherwiſe;for it cannot be ſhewed in any place of the Scripture where the moneths are reckoned in their order, as the firſt, ſecond, third, &c. that ever they began but from *Niſan*: Moſes therefore, according to the command of God, ordaining this moneth to be the firſt moneth, doth make no new inſtitution,but reneweth the old, as before was mentioned.

Anſw. To which it is anſwered, that when Moſes had occaſion to ſpeak of the moneths of the yeare in the hiſtorie of the Floud, he muſt either mention them as he did, or elſe ſay nothing of them at all: For it is plain enough that all of them had not names to be called by; and muſt therefore be reckoned according to their number (if at all they be reckoned) from whence ſoever the reckoning began. We do not finde that any of them had names, excepting foure, untill after the captivitie. The foure were theſe: 1 *Ethanim.* 2 *Bul.* 3 *Abib* or *Niſan.* 4 *Zif.* The firſt was called * *Ethanim*, or *menſis fortium*, from

* 1. Kings 8.2.

from the excellencie and dignitie of it; not onely becauſe it was the beginning of the yeare, but alſo of the reſt and Jubilee. The next to it was called [a] *Bul*, which is as much as *defluens*; becauſe in this moneth the leaves do as it were flow, ſlide, or fall away from the trees. The ſeventh was *Abib*, ſo called *à novis frugibus*, from the new fruits or eares of corn then firſt appearing. The eighth was called [b] *Zif*, which was *à ſplendore & nitore*, from the ſplendour and brightneſſe of it; ſeeing the earth was at this time ſtored with daintie fine flowers, and curious fair objects. Theſe were all which had names.

a 1. King. 6. 38.

b 1. King. 6. 1, 37.

That therefore for the order of the moneths proves as little as any thing elſe.

Wherefore I cannot ſee but that this opinion above all others may ſtand as the moſt probable, namely, that the yeare naturally began from Autumne; and ſo, by conſequent, the worlds creation was then.

The Autumnall Equinox was at that time (if it be reduced to our Julian account) about the latter end of *October*; but now it is about the 13 day of *September*: And the Sunne then entred into *Aries* about the latter end of *April*, which in theſe dayes is about the 10 or 11 of *March*; ſo much hath the Equinoctiall anticipated ſince the beginning.

Sect. 7.

The concluſion, wherein the former part of the chapter is recapitulated, and all explained.

BUt concerning the particular day, it was on the 26 or 27 day of *October*. And as for the other, when the Sunne entred into *Aries*, it was about the 21 or 22 day of *April*.

So that if the world began in the Spring, or at the Vernall Equinox, then we may account that about the 21 or 22 day of *April* was the firſt day of the world. Or if it began in Autumne, then the firſt

firſt of dayes was neare about the 26 or 27 of *October*.

But in my judgement the beſt opinion is (as hath been ſhewed) that it was in Autumne when things were not growing to perfection, but even in perfection it ſelf, as Adam was, who preſently after fell: ſo alſo the trees and plants in Autumne, with their fruits and ſeeds on them at the ripeſt, were in their perfection, began the courſe of Nature, faded afterwards by little and little through the approaching winter: which time ſeems to be a fitter time for Adam to bewail his fall in, and to make him the more ſenſible of his loſt happineſſe, then a pleaſant and chearfull Summer; becauſe by how much the more he was afflicted, he would by ſo much the more be ſenſible of his miſerie, and thereupon long the more earneſtly after the promiſed ſeed.

And not onely ſo, but alſo the fall of man at the fall of the leaf, and the reſtoring of him again at the reviving Spring, do make a more perfect and exact harmony, then if for their circumſtances of time we ſhould caſt them both into the Spring. For (as hath been ſaid) like as the death of Chriſt was of a contrarie nature to Adams fall; ſo the time for the one being contrarie to the time for the other, doth well expreſſe the nature of each act at either time.

And further, we have not onely the teſtimonie of *Joſephus* before alledged, againſt whom ſome except; but alſo the [a] Chaldee Paraphraſt doth witneſſe as much, ſaying that that moneth which in the firſt book of the Kings, the 8 chapter, at the 2 verſe, is called the ſeventh moneth, was in former times the firſt moneth. The words of which text ſtand thus, *And all the men of Iſrael aſſembled themſelves unto King Salomon, at the feaſt in the moneth Ethanim, which is the ſeventh moneth.* The meaning of which place that authour doth thus explain, ſaying,

[a] *Calviſ. Chr. cap. de temp. mund. cond. & Beroald. lib.* 1. *cap.* 7.

ſaying, All Iſrael were gathered together to king Salomon *in* * *menſe fortium*, or in the moneth *Ethanim*, on the feaſt day; which moneth in times paſt they called the firſt moneth, but now it is the ſeventh moneth. Thus he for the ancient beginning of the yeare: and of what authoritie this Paraphraſt is in the Church, the learned know.

* *FORTIUM, à præſtantia & dignitate dicitur; quia non anni tantum, ſed etiam Sabbati & Jubilæi principium fuit. Wolph. de Temp. lib. 1. pag. 15.*

Alſo we have teſtimonies in holy Writ to ſtrengthen the ſame aſſertion, and to ſhew us that the ancient beginning of the yeare was from Autumne, becauſe that *Tekupha* or Quarter is expreſſely tearmed the end of the yeare. As for example: in *Exodus* chapter the 23. verſe 16. and chap. 34. verſe the 22. it is ſaid, the feaſt of tabernacles was to be celebrated in the † ſeventh moneth, *at the end and return of the yeare:* which ſeventh moneth was agreeable to Autumne, as is well known. It is not onely ſaid, *at the return of the yeare*, which may be attributed to any of the * foure Quarters when the ſunne returns to them again: but it is alſo ſaid, *at the end and return of the yeare*, being alwayes about the ſeventh moneth.

† Levit. 23. 39.
* 2. Sam. 11. 1. 2. Chron. 36. 10. Ezek. 40. See alſo Wolph. *de temp. Bux. de Synag. Jud. Scal. de Em. Temp. &c.*

Yet nevertheleſſe we are not to think that the firſt day of the ſeventh moneth was alwayes the firſt day of their yeare; for their moneths being lunar were moveable: and therefore the head of the yeare was to take beginning according to the courſe of the ſunne. So that in what part ſoever of the lunar moneth that *Tekupha* happened which pointed out the Autumnall Equinox, from thence muſt the yeare be reckoned; for there the laſt yeare ended and the next began.

Queſt. And now if it be further demanded why God commanded the Iſraelites at their return out of Egypt, to alter the beginning of their yeare from Autumne unto the Spring, unleſſe it had been ſo of old:

Anſw. To that it is anſwered thus, viz. that there are two reaſons for it.

1. The

1. The one is this; They coming out of Egypt from the bondage of Pharaoh, were to begin their yeare from that time in memorie of their deliverance. And therefore it is ſaid in Exod. 12.42. *It is a night to be much obſerved to the Lord for bringing them out of the land of Egypt: this is that night of the Lord to be obſerved of all the children of Iſrael in their generations.*

2. And not onely ſo, but alſo at the ſame time of the yeare (as God had determined it) there was a better and a greater deliverie to be wrought for mankinde; namely ſuch a delivery as ſhould free him from the bondage of Satan by the death of Chriſt. Now this may be called the *Deliverie of deliveries*; of which that other out of Egypt was but a figure, becauſe it was but from a corporall bondage, whereas this was from a ſpirituall.

And thus came the yeare to be changed, which ever before pointed to the time of mans creation: but now it is made to point another way, namely to the time of mans redemption: by which God taught his Church (then typically delivered) how to expect the acceptable yeare of the Lord, and time of mans redemption; which was both proclaimed and purchaſed by that *Lambe of God who taketh away the ſinnes of the world:* whoſe offering upon the croſſe was at the ſame time of the yeare when that Paſchal lambe, by which he was prefigured, was ſlain: which time why it is ſevered from Autumne, hath been ſhewed.

Yea thus came the firſt to be laſt, and the laſt firſt: thus came *Niſan* to get the dignitie from the other moneths, and to be called the beginning or firſt moneth in the yeare. At which we need not marvell: for the time of mans redemption was a more worthy mark from whence to reckon, then the time of his creation.

And thus have I delivered what I finde and verily think to be moſt probable in this matter. Unto which

may be added,that as the evening was before the morning, ſo was the Autumne before the Spring: for the yeare and the day have a kinde of analogie between the one and the other (as may be ſeen in the ſeventh day compared with the ſeventh yeare) and therefore they do well ſerve, the one to expreſſe the naturall beginning of the other.

CHAP. III.

Containing a diſcourſe of ſuch things as are pertinent to the firſt dayes work.

Sect. 1.

Of God the Architect of all, and of the firſt part of the firſt dayes work.

TIme, by whoſe revolutions we meaſure houres, dayes, weeks, moneths and yeares, is nothing elſe but (as it were) a certain ſpace borrowed or ſet apart from *eternitie*; which ſhall at the laſt return to eternitie again: like the rivers, which have their firſt courſe from the ſeas; and by running on, there they arrive, and have their laſt: for before [a] *Time* began, there was *Eternitie*, namely God; which was, which is, and which ſhall be for ever: without beginning or end, and yet the beginning and end of all things. *Æternitas enim, Dei ſolummodo naturæ ſubſtantialiter ineſt*, ſaith one: that is, *Eternitie is ſubſtantially onely in the nature of God.* When Moſes therefore would have known Gods name, he tells him, *Thus ſhalt thou ſay unto the children of Iſrael,* [b] I Am *hath ſent me unto you: By which name*, ſaith Junius, *he would have himſelf known according to his eternall eſſence, whereby he is diſcerned from all other things which are either in heaven, on the earth, or elſewhere.* Which in another place is thus illuſtrated; *Ego ſum Primus & Ultimus, & præter me non eſt Deus;*

a *Deus dum cœlum exornaret, fecit æternitatis quandam in numero fluentem imaginem: quam nos Tempus vocamus:* Goclen. *ex* Plat.

Exod. 3. 14.

b *Hoc nomine ſe cognoſcendum proponit ab æterna eſſentia ſua, quâ ab omnibus quæ ſunt in cœlo, terra, & infra terram, diſcernitur. Junius, annot. in* Exod.

I am the Firſt and the Laſt, and beſide me there is no God, Eſay 44. 6. Or thus, *Before the day was, I am he; and there is none that can deliver out of my hand,* Eſay 43. 13. To which that of the Pſalmiſt doth well agree, *Before the mountains were brought forth, or ever the earth and the world were made, thou art God from everlaſting to everlaſting,* Pſal. 90. 2.

Thus we ſee, that before ever any thing was, God onely was, who [c] gave both a beginning and a being unto every thing that is: and he, in reſpect of his divine eſſence, is but one. Yet ſo, as in that ſingle eſſence of his there be three divine ſubſiſtences, or perſons all truely ſubſiſting; whereof every one is diſtinct from other, and yet each hath the whole Godhead in it ſelf: and theſe are, the *Father, Sonne,* and *holy Ghoſt,* 1. John, 5. 7.

c When we behold the admired fabrick of the world, &c. we can no more aſcribe it to chance, then a Printers caſe of letters could by chance fall into the right compoſition of any ſuch book as he printeth.

1. The Father is a perſon who from all eternitie hath begotten the Sonne.

2. The Sonne is a perſon from all eternitie begotten of the Father.

3. The holy Ghoſt is a perſon eternally proceeding from the Father and the Sonne, * as the holy Scriptures witneſſe.

* Pſal. 2. 7. John 15. 26.

[d] *Theſe thus diſtinct in perſon, not divinitie,*
All three in one make one eternall Trinitie.

d *Du Bart.* 1. day of the 1. week.

From which eternall and undivided Trinitie, the whole world, conſiſting of things viſible and * inviſible, took beginning, as the originall words, *Elohim* and *Bara*, do well expreſſe. For *Elohim* being a word plurall doth ſignifie *Dii, Gods:* but being joyned with a word ſingular, namely *Bara*, which is *Created*, they then together ſhew that there are three perſons in the Deitie, and that the three perſons are but one God, who did create. Or thus; [e] Thoſe two words, being the one of the ſingular, the other of the plurall number, do note unto us the ſingularitie of the Godhead, and pluralitie of the perſons. And not

* Coloſſ. 1. 16.

e Dr. Willet on Gen. pag. 20.

not onely ſo, but they alſo ſhew that the three perſons being but one God, did [f] all of them create: For ſuch is found to be the proprietie of the Hebrew phraſe, *Elohim bara*, [g] *Creavit Dii, The Gods created.*

f Gib. on Gen. Queſt. 1.

g Freig. Hiſtor. Moſaic. pag. 5.

1. Of the Father it is witneſſed, that he created as the fountain of goodneſſe. For ſaith S. James, *Every good and perfect gift is from above, & cometh down from the Father of lights*, Jam. 1. 17. *Of whom and through whom*, ſaith S. Paul, *are all things*, Rom. 11. 36.

2. Of the Sonne it is witneſſed, that he created as the wiſdome of the Father. For, *when he created the heavens*, ſaith Wiſdome, *I was there*, Prov. 8. 27. And again, *By him were all things created that are*, Coloſſ. 1. 14, 15. namely by him who did bear the image of the Father, and was the Redeemer of the world.

3. And laſtly of the holy Ghoſt it is witneſſed, that he createth as the power of the Father and the Sonne. For *by his Spirit he garniſhed the heavens, and by his hand he hath formed the crooked ſerpent*, Job 26. 13. and chap. 33. 4. Or, as the Pſalmiſt hath it, *By the word of the Lord were the heavens made, and all the hoſts of them* [*ſpiritu oris*] *by the ſpirit of his mouth*, Pſal. 33. 6.

All which conſidered, and found to be done in the beginning, muſt needs be then when there was no pre-exiſtent matter to work upon. For ([h] as it is witneſſed) the Hebrew word *Reſhith*, which is engliſhed *the beginning*, doth not ſignifie any ſubſtance; neither doth the other word *Bara, to create*, ſignifie any way to create but of nothing: and thereby it is diſtinguiſhed from the word *Jatzar, to form*, and *Gnaſha, to make*. And therefore though now we behold a glorious ſomething wherein appeares in every part more then much matter of wonder; yet at the firſt, ſaith noble *Bartas*,

h Gib. on Gen. Queſt. 1.

Nothing but nothing had the Lord Almightie,
Whereof, wherewith, whereby to build this citie.

That

That Axiome therefore in philoſophie, *Ex nihilo nihil fit*, muſt needs ſtand aloof off when we ſpeak of creation. For although it be [i] true that according to the courſe of nature and ordinary cuſtome of things, nothing can be made, unleſſe out of ſome former matter: yet when we deſcend *ad inquirendam primarum rerum conditionem*, to enquire after the firſt condition of the firſt things, then we ſhall finde that God is above nature, becauſe he is the Lord of nature. And he, whoſe ſufficiencie and efficiencie is altogether abſolute, muſt needs be able *ſupernaturali quadam ratione*, by a certain ſupernaturall means, to produce all things out of nothing.

[i] *Etſi ex nihilo nihil fit per motum ſeu tranſmutationem, id eſt, generatur; tamen ex nihilo aliquid fit per ſimplicem emanationem, id eſt, creatur.* Goclen. *diſp. Phyſ.*

Of which nothing that I may ſay ſomething, my beſt and onely way is to look at Moſes, and (as neare as I can) explain his meaning.

In the beginning (ſaith he) *God created the heavens and the earth.* In which words he laboureth not ſo much to deliver a generall propoſition of the works of creation, or of the two diſtinct parts of the world, or of the matter of heaven and earth, as if the one word did inſinuate all the ſuperiour parts of the world, the other all the inferiour parts beſide: or as if taking both together, he meant by them joyntly *totius mundi ſemen, the ſeed of the whole world*, mentioning it under theſe two words of *Heaven* and *Earth*, as a Chaos. This he meaneth not; becauſe that which concerns the Chaos is mentioned afterwards in the ſecond verſe. And what were it but a plain tautologie, to ſay that in the beginning God created a Chaos, and that Chaos was a Chaos? Wherefore in thoſe firſt words he intendeth nothing more, then to ſhew that the world which now is called, according to its parts, Heaven and Earth, was not from everlaſting, but took beginning: and ſo without controverſie the right reading of his words doth alſo witneſſe. For in their originall (as it is witneſſed by expoſitours) thus

thus they ſound, *In the beginning God created theſe heavens and this earth:* as if it ſhould be ſaid, Theſe very heavens and this very earth which now we ſee in being, were not alwayes, but began. Then afterwards he proceedeth to ſhew how, and in what time God created them: ſpeaking firſt how all was like a diſordered and deformed Chaos, the earth and the heavens not diſtinguiſhed, but lying as it were in a confuſed heap all together. And this is manifeſt. For on the ſecond day, when the heavens were made, it ſeemeth that their matter was from amongſt that maſſe or unfaſhioned lump which was ſaid to be void and without form, and not able to be kept together, had not the Spirit of God cheriſhed it, (for the Spirit of God moving upon the waters, did as it were ſit upon it and nouriſh it, as a fowl doth her eggs, with heat and life:) yea their matter, I ſay, was from among the waters, which by the power of Gods word were extended and ſtretched like a canopie round about the earth, as now we ſee them. In which regard S. Auſtines words are alſo pertinent, ſaying concerning this All of which we now ſpeak, [k] *Materies adhuc erat corporearum rerum informis, ſine ordine, ſine luce; It was yet an informed matter of corporall things, without order, without light.* Or, as that [l] Nightingale of France hath ſung it,

This was not then the world: 'twas but the matter,
The nurſerie whence it ſhould iſſue after;
Or rather th' Embryon *that within a week*
Was to be born: for that huge lump was like
The ſhapeleſſe burden in the mothers wombe,
Which doth in time into good faſhion come.

Thus and in this manner I cannot but think of theſe things, not doubting that Moſes in his deſcription of the ſenſible world meaneth otherwiſe; but ſheweth that that heaven and earth which now we ſee, were in the beginning or firſt degree of being, an earth, or as an

G earth,

k *Confeſſ. lib.* 12. *cap.* 21.

l Du Bart. firſt day. of the firſt week.

earth, or one lump, without form, and void; a darkened depth and waters; a matter of no matter, and a form without form, as one ſpeaketh; a rude and indigeſted Chaos or confuſion of matters, rather to be beleeved then comprehended of us. *And this*, ſaith [m] he, *is the ſecond naturall beginning. For, after the expreſſing of the matter, followeth that which Philoſophers call a ſecond naturall principle, Privation, the want of that form of which this matter was capable; which is accidentally a naturall principle, required in regard of generation, not of conſtitution, here deſcribed by that part next us, earth, which was without form, as is ſaid, and void. This was the internall conſtitution. The externall was darkneſſe upon the face of the deep. Which deep compriſeth both the earth before mentioned, and the viſible heavens alſo; called a depth, as to our capacitie infinite, and pliant to the Almighty hand of the Creatour: called alſo waters, not becauſe it was perfect waters, which was yet confuſed; but becauſe of a certain reſemblance, not onely in the uniformitie thereof, but alſo of that want of ſtabilitie whereby it could not abide together, but as the Spirit of God moved upon theſe waters to ſuſtain them, &c.* Here therefore is the third beginning or principle in nature, that form which the ſaid [n] Spirit by that action framed it unto.

m Mr. Purch. in his firſt part, lib. 1. cap. 2.

n Not the aire or winde; they were not yet.

The Hebrews [o] call the whole maſſe, as it is comprehended under the names of Heaven and Earth, *Tohu Vabohu*: *Tohu, without order; bohu, without varietie.* But it was not long that it continued in this imperfect ſtate: for in one week it was (as I may ſay) both begotten and born, and brought from a confuſed Chaos, to a well ordered and variouſly adorned Univerſe. Or, as one ſaith,

o Gibbens on Gen. queſt. 2. annot. d.

Materiam Deus ipſe creat, comitque creatam.

Whoſe meaning may be taken thus,

The matter firſt God out of nothing drew,
And then addes beautie to that matter new.

Which was, not becauſe he was unable to make all the

the world perfect in an inſtant; but becauſe he would not. Whereupon an holy † Father ſaid, *Voluntas Dei eſt cauſa cœli & terræ; & ideo major eſt voluntas Dei quàm cœlum & terra: The will of God is the cauſe of heaven and earth, and therefore it is greater then either of them.* † Auſt.

God therefore doth not diſable his omnipotence in not working all at once, but ſheweth that he worketh all things * *according to the counſell of his will*; which in this work of creation (proſecuted both by an order of time and degrees) is ſo farre from eclipſing his power, that it rather doth demonſtrate both his power and wiſdome to be infinite: and that *he hath ſo done his marvellous works, that they ought alwayes to be had in remembrance*, Pſal. 111. 4. For in wiſdome he hath made them all: And why not all at once, was becauſe the counſell of his will was otherwiſe. * Epheſ. 1. 11.

Queſt. But may we not yet enquire a further reaſon why it pleaſed the Almighty thus to will ſuch a ſpace, and would not rather produce this All perfect at once?

Anſw. This perhaps may be thought a queſtion too curious to be determined, becauſe Gods will is a ſufficient reaſon in all his actions; and therefore it is better left then looked into. Which ſurely might well be ſo, if the reaſons urged prove too eagle-eyed and unprofitable, not bettering us in our dulneſſe or want of knowledge. But otherwiſe, if they inſtruct man in any thing pertinent to his preſent condition, and inform him ſo as he may be ſomewhat reformed by them: then they may be urged without the brand of niceneſſe or imputation of curioſitie.

Firſt therefore we may joyn with them, who ſay that perhaps it pleaſed Gods infinite perfection to take this leiſure; becauſe if the creatures had been made all at once, they might be thought to be increate, and not made at all; nor yet to have the like ſenſe of their infir-

mitie as now they have, one ſeeing another made before them.

Secondly, ſeeing the world was thus perfected by degrees before man was, who (being made) was the chief inhabitant of it: me thinks ſo orderly to raiſe ſuch a ſumptuous palace for mankinde, whileſt yet mankinde was not, what was it, but the declaration of a greater kindneſſe, and a demonſtration proving how kinde, how carefull, and how gracious God would be to us ever after being made? and therefore now we muſt not diſtruſt him, but *in all our wayes acknowledge him, and he ſhall direct our paths*, Prov. 3. 5, 6. For ſo he hath promiſed, and ſo he doth perform to all that love and fear him; cauſing every thing to work together for their good; nay, for their beſt, as the Apoſtle ſpeaketh. Or, as the Pſalmiſt hath it, *No good thing ſhall he withhold from them who live a godly life*, Pſal. 84. 12.

Thirdly, by this example mankinde may reade a lecture againſt himſelf, if heedleſly or haſtily he behave himſelf in any work, and ſhall not rather proceed ſoberly and by degrees, making haſte (as it is ſaid) by leiſure. For true it is, that with us a ſoft pace goes farre: Which made one * fix this contemplation upon the works of creation, ſaying, *How ſhould we deliberate in our actions which are ſo ſubject to imperfection; ſeeing it pleaſed Gods infinite perfection (not out of need) to take leiſure!* Upon thought of which, let us

* Biſh. Hall, *contemp. lib.* 1.

Make ſober ſpeed: for 'tis obſerv'd by proof,
That what is well done is done ſoon enough.
Feſtina lentè: Nam ſat citò, ſi ſat bene.

Thus having (as it were) conſidered the firſt part of the firſt dayes work, we may now come more nearely to that which is the beauty of it, I mean the Light, which ſome call Gods eldeſt daughter, or the firſt diſtinguiſhed creature, wherewith the Lord * decked the world as with a garment.

* Pſal. 104. 2.

Sect. 2.

The creation of the Light.

AND now concerning this bright creature, no ſooner did God ſay, Let it be, but lo it was. He* commanded that it ſhould ſhine out of darkneſſe, as ſpeaks the Apoſtle; and that being ſeparated and ſet apart from [a] the darkneſſe, the firſt of dayes might be, and Gods good works appeare, beginning with the Lights proceeding to ſhew forth his exceeding glory.

* 2. Cor. 4. 6.

a *Ex tenebris dicitur eduxiſſe lucem, non ut ex materia (nihil enim tenebræ fuerunt, niſi negatio lucis) ſed ut è contrario termino.* Parc. *in* Gen. *pag.* 146.

But of this reſplendent creature (without which the beauty of the reſt could not be ſeen) there are no few opinions.

1. Some would have it a ſpirituall Light; and ſo under it they comprehend the creation of Angels. But ſurely in my judgement their opinion is the ſounder who make it a naturall and materiall Light onely, ſuch as now is in the Sunne, the Index of time, and the worlds bright eye. For as the office of the Sunnes light is now to diſtinguiſh between the Day and the Night; ſo was the office of this Light, being commanded to ſhine out of [b] darkneſſe before the Sunne was made: which being made, was the ſubject ever after to retain it. If it were otherwiſe, or any other light, where is it now? ſhall we ſay that it is either extinguiſhed or applied to ſome other uſe? ſurely I think not; becauſe God (who made all by the power of his word) needed no inſtrument or help in the work of his creation: And therefore that Light which at the firſt made his works appeare, is no ſpirituall Light; but ſuch and the ſame that now is in the Sunne. And yet perhaps, as [c] *Aquinas* thinketh, it was but *Lumen informe, quod quarto die formatum eſt; An informed Light, which on the fourth day had its perfect form.*

b Which was the locall, but not materiall originall of it, as ſaith Pareus. *ibid.*

c *Aquin. Sum.* 1. *par. Queſt.* 70. *artic.* 1.

Of Angels, and when they were created.

And as for the creation of Angels, it is not like that they were made this firſt day, but on the fourth day: For it is

it is very probable that there was the like order obſerved in making of the inviſible world, which was in the viſible; and that on the ſecond day, not onely the viſible, but alſo the inviſible heavens were created; yet ſo as both of them remained as it were unpoliſhed or unfiniſhed untill the fourth day: For then as the outward heavens were garniſhed with Starres, ſo might the inward and higheſt heavens be beautified with Angels. This me thinks is not obſcurely pointed at in Job, chap. 38. verſ. 7. *Where wert thou*, ſaith the Lord to Job, *when the ſtarres praiſed me* (or *ſang together*) *and all the ſonnes of men ſhouted for joy?* it being here [d] evident that when the Starres were made, the Angels alſo had then their being, & rejoyced before God; which was but upon the fourth day of the creation. All this, I ſay, might well be thus although Moſes doth not directly mention it; which was becauſe he applied himſelf to the ſimple capacitie of the people, deſcribing the creation onely of ſenſible things, being that which at the firſt he intended, and did in plain tearms teſtifie in the beginning of his hiſtorie, when he ſaid, *Theſe Heavens, and this Earth*, of which I ſpoke before.

d See Dr. Willet on Gen. chap. 1. Queſt. 33.

And further, were the creation of Angels comprehended under the creation of the heavens and light, what were this but to leave the literall ſenſe (which is to be followed in the hiſtorie of the creation) and to cleave unto Allegories?

But ſecondly, concerning this Light, others think that the element of fire was ſignified by it, whoſe effect is light, and whoſe act and qualitie is to enlighten: which made one therefore ſay, that *The uncreated Light* (viz. God) *commanded this elementarie light to be, that ſo the thinner and higher element ſevered from the aire, might by his enlightning operation effect a lightſome ſhining,* —— *and the aire, according to the nature thereof, receive it: which to the*

the fire was an eſſentiall propertie,——to the aire an accidentall qualitie approved of God, as good both to himſelf and the future creatures. Thus ſome. But others except againſt it, affirming that this light was moveable, by the preſence of it making day, and by its abſence making night: which could not have been, had it been the element of fire; unleſſe it be more or leſſe in one place then in another, and not equally diſperſed. Or, as *Pareus* anſwereth, it could not be the element of fire, becauſe that is above the clouds (according to the common rules of Philoſophie) and therefore in his judgement the fierie element was not untill the ſecond day, being created with the *Expanſum* or ſtretching out of the aire.

But unto theſe exceptions I think an anſwer may be framed, as I perhaps ſhall afterwards ſhew you.

Thirdly, if (as ſome have done) we ſhould think that this was the very light of the ſunne, and then in the ſunne, or in ſuch a cloud or ſubject as was the matter of the ſunne, the text would be objected againſt it; which affirmeth that the ſunne was not untill the fourth day: for the creation of that was but then, although the light was before.

Fourthly, *Aquinas* ſaith, [e] *Lux primo die fuit producta ſecundum communem lucis naturam: quarto autem die attributa eſt luminaribus determinata virtus ad determinatos effectus: ſecundum quod videmus alios effectus habere radium ſolis, & alios radium lunæ, & ſic de aliis.* Whereupon he concludeth, that howſoever it was, it was but an informed light untill the fourth day.

[e] *Aquin. Sum. part. 1. quæſt. 70. art. 1.*

Now therefore, amongſt a multitude of opinions which are beſides theſe already mentioned, I (for mine own part) cannot but preferre this as the beſt; namely, that the light for three dayes ſpace wanted a ſubject, ſuch as now it hath: and yet it did perform the ſame office which now it doth being faſtened to a ſubject, or

to

to the bodie of the Sunne, which is *Vehiculum lucis, A Chariot for the light.* For we may eaſily perceive that in the works of creation there is ſuch an [f] harmonious order obſerved, as that there may be an union and reduction of all things of one kinde to their own heads and centre.

[f] God made one proper centre for all things of one kinde, unto which he reduceth them.

As for example, the upper waters muſt be ſevered by the out-ſpread firmament; and the lower muſt repair all to one ſea, as their naturall ſubject: and as for heavie ſubſtances, they haſten downwards; and the light ones, they fly upwards. In like manner, that light which at the firſt was diſperſed and fixed to no ſubject, doth preſently (as ſoon as the ſunne was) unite it ſelf unto that body, as now it is.

This of all other ſeemeth to me the beſt opinion to pitch upon, and the moſt probable in this kinde: which may well be as an Embleme how God will one day gather his elect from all coaſts of heaven to the participation of one glorie. S. Paul applieth it to our regeneration, thus; * *God, who commanded the light to ſhine out of darkneſſe, hath ſhined in our hearts,* &c. that *we, who were once darkneſſe, are now light in the Lord.* And in this conſideration I think we need not much diſſent from them who would have the element of fire ſignified by it; which opinion was before mentioned: for howſoever it be that that element be now diſperſed, or whereſoever placed, yet it might be that the firſt light ſhined from it; thus I ſay it might be, becauſe we may not reaſon [g] *à facto ad fieri,* or from the order of the conſtitution of things in which they now are, to the principles of their inſtitution whileſt yet they were in making. And for further proof of this, I do eaſily aſſent to them[h] who have probably affirmed that the ſtarres and lights of heaven contain the greateſt part of this fire; as afterwards in the fourth dayes work ſhall be more plainly ſhewed.

* 2. Cor. 4. 6 & Ephe. 5. 8.

[g] *Parch. lib.* 1. *cap.* 2.

[h] *Lyd. Prælect. Aſtron. cap.* 4.

This

This I have ſaid, as ſeeming to me the beſt and moſt probable tenent; although perfectly to affirm what this light was, muſt be by our enlightning from him who commanded that it ſhould ſhine out of darkneſſe. Of which ſhining and darkneſſe (ſeeing the Sunne was not yet made, which by his courſe and turning about makes it day and night at the ſame time in divers places)it may be ſaid that it was day and night at the ſame inſtant now over the face of the whole earth: which made [i] one therefore ſay,that the firſt darkneſſes were not *loco diviſæ, ſed planè depulſæ à luce ut nuſquam eſſent*; yet ſo, as that they ſhould either return or depart,according to the contraction or expanſion of this firſt light, cauſed by a divine diſpenſation. [k] Thus *Pareus.*

i *Pareus in Gen.* pag. 148.

k But otherwiſe it may be ſaid, that the firſt dayes light was carried to another hemiſpheare juſt with the dawning of the ſecond day: for as ſoon as the out ſpread Firmament was commanded to be, the Heavens ſurely were made, and began to move.

And now of thee, oh bright-ſhining creature, it may be ſaid, that, hadſt thou never been, the beautie of the world had been as nothing: For thou art the beautie of all the beauties elſe, as ſaith *Du Bartas*,

Gods eldeſt daughter, Oh how thou art full
Of grace and goodneſſe! Oh how beautifull!

Queſt. But if God made the Light, was he not before in darkneſſe? *Anſw.* No: For he needs not any created light, who is himſelf a Light uncreated; no corporall light, who is a ſpirituall one. *God is light, and in him is no darkneſſe at all*, 1. Joh. 1.5. He made this light for our mortall journey on earth; himſelf is the Light of our immortall abode in heaven: neither did he more dwell in this light that he made, then the waters were the habitation of the Spirit, when it was ſaid that *the Spirit moved upon the waters.*

But ſee, there was Night, Light and Day before the Sunne; yet now without it there is neither: which ſheweth that we muſt allow God to be the Lord of his own works, and not limit his power to means.

And ſurely as it was before man was made, ſo ſhall it

* Eſay 60. 19.

be after he is diſſolved: For then, as the * Prophet ſpeaketh, *The Sunne ſhall no more be thy light by day, neither ſhall the Moon give light unto thee: but the Lord ſhall be unto thee an everlaſting light, and thy God thy glory.*

Laſtly, unto this amongſt many things let me adde but one thing more. God made light on the firſt day; ſo Chriſt aroſe from death on the ſame day, being the firſt of the week: And he *is the true light which lighteth every one that cometh into the world:* Of which light if we have no portion, then of all creatures man is the moſt miſerable.

Sect. 3.

Of the intercourſe between day and night.

WHat now remaineth? God called the light Day, and the darkneſſe Night: 'Tis true;

Th' Alls Architect alternately decreed,
That Night the Day, the Day ſhould Night ſucceed.

Of both which we have more then manifold uſe and benefit. The night eaſeth the burden of the day; the day driveth away the terrour of the night. The night burieth our cares, and doth what ſhe can to drown all our griefs in a ſilent ſleep: the day ſerveth for our needfull labours; is the wicked mans juſt terrour, the mother of truth, and true beauties onely glaſſe, wherein ſhe may both ſee her ſelf, and be alſo ſeen. The night ſerveth to temper the dayes exceeding drought, and to cool its heat; for by moiſtning the aire it makes the earth to fructifie: the day again warmeth the coolneſſe of the night, melting the white hoarie haires of winters beard; and with a reviving, cheriſhing, and nouriſhing of things, as well ſenſible as vegetative, addes life afreſh into the dying univerſe; ſerving (as I ſaid before) for the needfull labours of man: For, as the Pſalmiſt hath it, *The ſunne ariſeth, and then man goeth forth unto his work, and to his labour untill the evening*, Pſal. 104.22. And ſo alſo for the night,

it is

it is deſtinated or appointed for quiet and ſleep, wherein the wearied bodies of living creatures are refreſhed, and their ſtrengths repaired: the noiſome beaſts now come forth and feed, leſt coming in the day they might be a terrour unto men: For, as the Pſalmiſt again recordeth, *Thou makeſt darkneſſe that it may be night, wherein all the beaſts of the forreſt do move*; as the lions roaring after their prey, and the like, verſ. 20.

But of this enough. And now laſt of all when this dayes work was done or brought to an end, God is ſaid to view it, and behold there was nothing amiſſe; That is, Moſes, ſpeaking according to our capacities, telleth us that God doth approve and ratifie that work now done, which before he purpoſed to make.

So Eve and Morn conclude the firſt of dayes,
And God gives to his work deſerved praiſe.

CHAP. IIII.

Of the ſecond day; and of ſuch things as are pertinent to the work done in it.

Sect. 1.

Of the Expanſum, *or ſtretching out of the Heavens.*

CONcerning this dayes work what it was, we finde it thus expreſſed, *And God ſaid, Let there be a firmament in the midſt of the waters; and let it divide the waters from the waters. And God made the firmament; and divided the waters which were under the firmament, from the waters which were above the firmament: and it was ſo. And God called the firmament Heaven: and the evening and the morning were the ſecond day.* Gen. 1. 6, 7, 8.

This is the narration of what was done. And here let us conſider, firſt of the Firmament: then of the waters which it ſeparateth: and laſtly of the ſeverall Heavens; together with the regions of the aire, and of ſuch appearances as we uſe to ſee there: unto which if any thing elſe be met withall pertinent to this dayes work, it ſhall be added.

The word[a] *Rakiah* tranſlated *Firmament*, ſignifieth *Expanſum*, or *expanſionem*, which is a ſtretching out; not onely from the earth, but about the earth: ſo that the world being mans houſe, the Firmament is as the vaulted roof of it: Or (as [b] *Hyperius* obſerveth) it is *tanquam theca*

a Junius, Gibbens, and others.

b *Meth. Theol. lib.* 2. *pag.* 333.

ca quædam, omnia quæ Deo ipſo inferiora ſunt, incluſa continens; as a certain husk, ſhell, or box, incluſively containing all things without the Heaven of heavens, or which are below that place where God doth manifeſt his glorie. Which alſo is further to be ſeen in the hundred and fourth Pſalme, at the ſecond verſe, where it is ſaid that *God hath ſtretched out the heavens as a canopie:* or, *extendiſſe incurvando cœlos tanquam conopeum*, as ſome reade it: by which compariſon it ſeemeth that the Firmament is not ſo much *expanſum ratione extenſionis à centro, quàm circa centrum*; not ſo much a thing ſtretched out by reaſon of its diſtance from the centre, as about the centre.

And again, we call it the Firmament, becauſe in the ſtretching out it was not weakened, but made ſtrong: In which regard expoſitours do well obſerve the difference which is between *Rakiah* and *Karah*. For, the word which is here uſed, they reade it *Rakiah*, and [c] ſay that it doth properly ſignifie a thing made ſtrong by ſtretching out; being therefore contrary to the word *Karah*, which is to break in ſtretching.

c See Gibbens on Gen. chap. 1. queſt. 5.

And the Greeks likewiſe, that they may give a full expreſſion according to the proprietie of the word, do tranſlate it and call it Στερέωμα, from the verb Στερεόω, ſignifying to make ſtrong or firm: and thus alſo the ancient Greek Philoſophers obſerved, calling the whole compaſſe of the heavens [d] Στερέμνιον, meaning the very utmoſt bound of them, which is not ſo weak that it ſhould be broken in the ſtretching; but ſtrong, and farre more free from a fluid nature then is that aire which the concave of it keepeth and holdeth.

d See Lydiats *diſquiſitio Phyſ.* cap. 10. pag. 196.

The Latines alſo call it *Firmamentum*; and we, in our ſpeech, the *Firmament:* which in reſpect of its extenſion is the whole compaſſe of heaven on all ſides; being as it were the caſe of the viſible world and all things in it, as hath been ſhewed.

Sect. 2.

Of the waters above the Heavens.

BUt from the concavitie of this firmament, we may paſſe to the convexitie of it. And now if it be conſidered as it is convex, then we ſhall come to the examination of that which God aſſigned as proper to it moſt eſpecially; viz. that it ſeparate the waters from the waters. For this out-ſpread firmament is by its office to ſeparate; and to be, not above the waters, but between them: and therefore thoſe waters which it ſeparateth, cannot be ſuch waters as are in the clouds, but rather above the concave of the firmament.

If they be ſuch as are in the clouds, then are they rather in the middle of the firmament, then the firmament in middle or between them. And this made one argue thus, ſaying,[a] *Expanſio in nubium regione aut finitur, aut ulteriùs extenditur: ſi ibi finitur, ſtellas infra nubes conſtitutas eſſe oportet. Sin ulteriùs extenditur, ſupercœleſtes aquas ab inferioribus expanſio non ſejungit, ſed nubes potiùs unam expanſionis partem ab altera diſpeſcunt. Atqui utrumque horum à Moſis narratione abſonum. Tutiſſimè igitur aquas cœleſtes ſupra ſidera eſſe conſtitutas; totúmque illud, quod à globo terræ & aquæ ſurſum expanditur, cœli vel aëris nomine contineri ſentiemus.* That is, *The out-ſpread firmament either is ended in the cloudie region, or is further extended. If it be ended there, then the ſtarres muſt needs be under the clouds*, becauſe they are within the firmament, Gen. 1. 6. *But if it be further extended, then the ſuperceleſtiall waters are not ſeparated by the firmament, but rather the clouds ſever one part of the firmament from the other: both which are againſt Moſes his narration. Therefore we may ſafely think that the celeſtiall waters are above the ſtarres, &c.*

[a] *Goclen. diſput.* 18. *ſect.* 29.

In which regard it may be alſo thought that both

theſe

theſe waters dropping from clouds in the aire, and alſo all other waters under the canopie of Heaven, or within the concavitie of this *Expanſum*, are but the lower waters: and thoſe other, which are ſeparated from them, muſt be in an higher place, viz. above the firmament, and ſo ſhall they be divided by the firmament; otherwiſe not. To which purpoſe [b] *Du Bartas* thus,

I'le rather give a thouſand times the lie
To mine own reaſon, then but once defie
The ſacred voice of th'everlaſting Spirit,
*Which doth ſo * often and ſo loud averre it,*
That God above the ſhining firmament,
I wot not, I, what kinde of waters pent.

Or, as [c] *Hyperius* alſo writeth, *Aſſentiemur Moſi, ac ſimpliciter ſtatuemus aquas non tantùm infra firmamentum, ubi in portiones & quaſi regiones certas ex ipſæ ſunt diſtributæ, aliaq; per aërem circumvehuntur, aliæ terris ſunt adglutinatæ; verùm etiam ſuper illud eſſe alias undique circumfuſas.* That is, *Let us aſſent to Moſes, and plainly determine that there are not onely waters below the firmament, as it were divided into certain portions and regions, ſome of them carried about through the aire, ſome faſtened to the earth; but alſo that there are other waters above the firmament ſpread round about it.*

Which thing is alſo thus further manifeſted; becauſe thoſe waters that are ſeparated by the firmament, are to be at all times ſeparated. For God, in the creation of this firmament, did not onely command that it ſhould ſeparate, but alſo that it ſhould be ſeparating: that is, Let it [d] continually ſeparate or divide the waters from the waters; [e] *quaſi voluerit nullum eſſe tempus quo non diſtinguat; as if he would have it that there ſhould be no time wherein it might not diſtinguiſh between the one & the other.* Which as it cannot be done unleſſe there be alwayes waters to be diſtinguiſhed; ſo neither can it be pertinent to thoſe

waters

b In his ſecond day of the firſt week.

* Gen. 1. 7. Pſal. 104. 3. Pſal. 148. 4.

c *Hyp. Meth. Theol. lib. 2. pag.* 335.

d Ainſworth on Gen.

e *Lydiat. diſquiſitio Phyſ. cap.* 10.

waters in the clouds, becauſe the aire is often cleare, and thoſe bottles of rain are not alwayes there.

* Jer. 10. 13.

And again, it is from the vapours drawn from * below that clouds and rain come: which cannot at all times be; but then onely when there is a naturall concourſe of cauſes to effect it. And then again when they are there, they be ſoon gone: for the rain, proceeding from thoſe vapours which we call the clouds, ſtayeth not long in the aire, but forthwith falleth down again; and ſo by little and little the vapour conſumeth and the cloud is gone. How can it therefore be that theſe ſhould be thoſe ſupercelestiall waters ſeparated from all other waters by the firmament, ſeeing the firmament is above them? and not onely ſo, but alſo their proper place is here below, being but at times drawn from hence, and then it is as it were againſt their wills, which makes them therefore haſten hither again with all the ſpeed they can: whereas on the contrary the firmament is to be between thoſe waters, and not over them; ſeparating them, not at times, but continually.

Neither may it ſeem ſtrange how the out-firmament can be able alwayes to uphold them, ſeeing (as hath been ſaid) it was made ſtrong by ſtretching out, lifting then the waters up with it, and therefore well fitted for this office, and can no more fall then [f] the heaven it ſelf, whoſe beams or rafters are laid in the waters, as the Prophet ſpeaketh, Pſalme 104. 3. And hereupon it alſo was that noble *Bartas* ſaid,

I ſee not why mans reaſon ſhould withſtand,
Or not beleeve that He whoſe powerfull hand
Bay'd up the Red ſea with a double wall,
That Iſraels hoſt might ſcape Egyptian thrall,
Could prop as ſure ſo many waves on high
Above the Heav'ns ſtarre-ſpangled canopie.

This was his opinion concerning the waters ſeparated by

[f] *Decidere non magis quàm cælum ipſum queant.* Hyper. Meth. Theol. lib. 2. pag. 335.

by the firmament; of which opinion are ſundry more.

But on the contrary ſide are other ſome who are of another minde, affirming that they are meant onely of thoſe waters in the clouds: for (ſay they) the aire is called the firmament; ſo alſo is the skie, &c. And of the clouds it is ſaid in Job, that * *God bindeth up his waters in thick clouds, and the cloud is not rent under them.* So that, firſt as every part of the water is called by the name of water; in like manner every part of the firmament is called by the name of the firmament: in which regard thoſe waters in the clouds, although no higher then the aire, may be taken for thoſe waters which the firmament doth ſeparate: and ſecondly, that place in Job ſheweth no leſſe, making it appeare, how and in what manner the waters are ſeparated by the firmament.

The contrary and their reaſons.

* Job 26. 8.

Furthermore, *Ex ipſâ nubium natura*, ſaith [g] *Pareus*, *From the very nature of the clouds* this appeareth to be ſo: for what other thing are the clouds but waters ſeparated by force of the diurnall heat, and by the cold of the aire made thick? whereupon (as *Plinie* calleth them) they are ſaid to be [h] *Aquæ in cœlo ſtantes, Waters ſtanding in the heavens.* Alſo, it may be added (ſaith *Pareus*) that Moſes makes mention but of two kindes of waters, *ſuperas, & inferas, the higher and the lower:* but the clouds are waters, as hath been ſhewed; and no low waters; therefore they are the upper waters: unleſſe there be three kindes of waters, which is contrary to Moſes.

g *In Gen. pag.* 170.

h *Plin. lib.* 31. *cap.* 2.

Beſides, this (ſaith he) is confirmed by the grammaticall conſtruction of the words. For Moſes ſaith, not that it divided from the waters which were *ſupra Expanſum*; but thus, viz. from the waters which were *deſuper Expanſo:* The ſenſe therefore is, not that the waters were carried up above the whole *Expanſum* or Firmament; but rather that they were carried upwards, ſo, as that with

the firmament they were *ſupra and deſuper*; that is, *above and on high.*

Alſo, the name of heaven confirms no leſſe: for (ſaith he) the *Expanſum* is called according to the Hebrews *Schamajim* or *Shamajim*; from *Sham*, *There*,and *Majim*, *Waters*: which derivation is common. And therefore thoſe upper waters are not quite above the *Expanſum*, or the Firmament; but are *there*, that is, in the Firmament, namely in the middle Region of the aire.

The reader is left unto his free choice.

Thus we ſee the difference concerning theſe waters. And now let the reader chooſe which opinion likes him beſt. But for mine own part I like this latter worſt: yet let me not tie another to be of the ſame minde any further then he pleaſeth: for it is no matter of faith, and therefore we have our free choice according to the beſt reaſons and moſt forcible demonſtrations. Wherefore let me proceed a little further, that thereby (as neare as I can) I may ſet down that which ſeemeth to me the beſt meaning and neareſt to the truth.

The matter in queſtion is cleared by anſwering the contrary arguments.

Firſt then I anſwer, that they do miſtake who divide the *Expanſum* into parts, as if in ſo doing they could abſolutely cleare the matter in queſtion: for it is not a part of the Firmament that is appointed to this ſeparating office, but the whole Firmament;as any one may ſee, if he do but obſerve the words of God, producing and aſſigning it. Neither do we finde that the Firmament is any more then one. To divide it into parts ſo as they imagine, is not to divide it into parts, but rather to make ſo many Firmaments as they imagine parts; like as every ſcale of an onyon is a ſeverall and differing ſcale, and not one the part of another. And beſides, neither is there the ſame reaſon between the parts of water and theſe ſuppoſed parts of the Firmament: for then when God made the Sunne, Moon,and Starres,he would not have ſaid, Let them be *in the Firmament*, but *above the Firmament*; for they

they are farre higher then the clouds; yet, I ſay, they being higher then the clouds, he is ſaid to place them but in the Firmament: and they being no more but in it, how improperly do we affirm thoſe things to be above it, whoſe places are lower then either Sunne, Moon, or Starres!

The ſunne, moon, and ſtarres, are higher then the clouds, and yet they are not ſaid to be above the firmament, but in it: the fowls alſo flie in it, but not above it.

And ſecondly, admit Job tells us that there are waters bound up in thick clouds; doth not Jeremie alſo tell us that they are drawn up in * vapours from the earth? which (as hath been ſhewed) cannot at all times be, but then when there is a naturall concourſe of cauſes to effect it: whereas the out-ſpread Firmament is to be alwayes between them, ſeparating them, not at times, but continually. And as for the rain proceeding from thoſe waters which we call the clouds, it ſtayeth not long in the aire, but forthwith falleth down again; ſhewing that of right their proper place is here below: and therefore we make not three kindes of waters (as if we would be contrary to Moſes) in ſaying that there are other waters above the concave of the Firmament, which on this ſecond day of the worlds creation were ſeparated from all other waters.

* Jer. 10. 13.

Wherefore obſerve but this, they being ſeparated on this ſecond day, how could they be ſuch as the aire affordeth? for the middle Region of the aire, which is the place for the clouds, was not untill the third day: Not untill the third day, I ſay, becauſe it is found by experience, and from ſufficient witneſſe proved true, that the tops of the higheſt mountains do reach up unto that place which we call the middle Region of the aire, being ſome of them more loftie then the clouds.

There was no middle Region untill the third day.

As for example, in *Japan* there is a mountain called *Figeniana*, which is ſome certain leagues higher then the clouds. And in *Ternate* among the *Philippine* Iſlands there is a mountain, which (as M^r. *Purchas* in his pilgrimage re-

lateth) is even angry with nature becauſe it is faſtened to the earth, and doth therefore not onely lift up his head above the middle Region of the aire, but endeavoureth alſo to conjoyn it ſelf with the fierie Element. And of the mountain *Athos* between *Macedon* and *Thrace*, it is ſaid to be ſo high, that it caſteth ſhade more then * thirtie and ſeven miles. Alſo the mount of *Olympus* in *Theſſalie* is ſaid to be of that height, as neither the windes, clouds, or rain do overtop it. And (although I omit ſundry others of † exceeding height) it is alſo written of another mount ſo high above the clouds, that ſome who have ſeen it do witneſſe that they have been on the top of it, and have had both a cleare skie over their heads, and alſo clouds below them pouring down rain and breaking forth with thunder and lightnings; at which thoſe below have been terrified, but on the top of the hill there was no ſuch matter. This ſurely was that mountain which [i] Mr. Lydiat meant when he ſaid, that *etiam æſtivis diebus, even in the ſummer time*, when the clouds are at the higheſt, thoſe on the top of the mountains have had fair weather, and withall perceived that there was plentie of rain about the middle height of the ſame hills.

* Viz. 300 furlongs which make 37 miles and an half.

† As *Atlas*, *Pelion*, *Oſſa*, *Caucaſus*, and *Tabor*, which laſt riſeth up 30 furlongs, as *Joſephus* writeth.

i *Lyd. de orig. fontium*, cap. 10.

Thus we ſee that there are lofty mountains: And indeed their loftines is the cauſe of a middle Region: for the hils, hindering the aire from following the motion of the heavens, do make it about their tops a fit & convenient place to thicken theſe vapours into clouds, which by the attractive power of the heavenly bodies are drawn up thither.

Wherefore (that I may conclude) the place of the middle Region being both cauſed and alſo overtopped by ſundry high mountains, it will appeare that there was no middle Region of the aire untill the third day, becauſe the waters were all over the earth, and ſtanding above the hills untill that very day: For then, and not before, God gathered them together unto one place, and made

the

the drie land to appeare, which before was covered with waters as with a garment, Pſalm. 104. *Rarior aqua*, ſaith one, *velut nebula, terras tegebat, quæ congregatione denſata eſt; The thinne water, like a miſt or wet cloud, covered the earth, which by gathering together was made thick.* In which regard it may be ſaid, ſaith [k] *Aquinas*, that it was as naturall for the water to be every where about the earth, as for the aire to be about both water and earth: yet nevertheleſſe, *propter neceſſitatem finis*, ſaith he, *for the neceſſitie of the end*, namely that plants and living creatures ſhould be upon the earth, it was meet that the earth ſhould be ſo uncovered, and the waters ſo gathered, that the drie land appeare. Now this was a work pertinent unto the third day; and before this work done there could be no middle Region: and the middle Region being on this day and not before, how can the waters in the clouds be thoſe waters which were ſeparated by the out-ſpread Firmament on the ſecond day? Neither do I here argue *à facto ad fieri*, becauſe in the very creation of this Firmament, God then ſaid, *Let it be between the waters*; that is, even then beginning its office and art of ſeparating them. Which that it is even ſo, we ſee he ſpeaketh next concerning the lower waters, and makes no more mention at all of thoſe upper ones, becauſe he had already done with them, and left them in their place unto which he had appointed them.

k *Aquin. Sum. par.* 1. *Queſt* 69. *Art.* 1.

Of the windows of heaven opened in the Floud.

But furthermore, this tenent is not a little helped by a conſideration of the cataracts or windows of heaven which in the dayes of Noah were opened, and poured down rain by the ſpace of fourty dayes: For me thinks the clouds could not be thoſe windows of heaven, becauſe it rained fourty dayes, and before it left raining the waters were higher then the hills, being, when fourty dayes were ended, fifteen cubits above the higheſt mountains, as in the hiſtorie of the Floud is manifeſt.

And hereupon it was that one once by the ſame reaſon concluded and ſaid, that either it did not rain fourty dayes, (which aſſertion we are ſure is falſe) or elſe it rained from ſome other where then from the middle Region: For ſeeing the middle Region it ſelf was drowned before it ceaſed to rain, it cannot but be that the rain deſcended from ſome higher place.

1. *Object.* But perhaps ſome may think that the clouds mounted higher and higher, as the waters increaſed; inſomuch that as the waters by little and little gat above the mountains, ſo did the clouds.

Anſw. This cannot be; becauſe that which makes us diſtinguiſh the aire ſo as it may have a middle Region, is nothing elſe but the differing temper that it hath, both from the upper and lower Region; and this differing temper is cauſed by the hills, which hindering the aire from following the motion of the heavens, do make it a fit place to thicken thoſe vapours into clouds, which by the attractive power of the ſtarres and planets are drawn up thither; as already hath been ſhewed, and as afterwards ſhall be touched when I come again to ſpeak of the ſeverall Regions and their tempers; ſhewing you that it is an Axiome undeniable, that the farneſſe from a circular motion gives quietneſſe, coldneſſe, and heavineſſe; even as the neareneſſe to it gives motion, heat, and lightneſſe.

2. *Object.* Or ſecondly, perhaps ſome may think that the hills and mountains were not before the Floud, but made by the violence of the waters; and that Moſes, when he would deſcribe how high the waters were, doth but ſhew us that they were higher by fifteen cubits then the higheſt mountain that was then in his time: which he might well ſay, and make ſuch a compariſon, although there were no hills before the floud.

Anſw. That which hath been ſaid in the former anſwer

ſwer concerning the cauſe of the middle Region, doth ſufficiently ſtop this laſt objection, unleſſe it be granted, that there were no clouds untill the Floud had made the hills: And indeed if any ſuch thing be granted, then all is granted, and the controverſie quite ended concerning theſe waters above the Heavens.

That hills and mountains were not cauſe'd by the Floud.

But beſides that anſwer, I hope to make it appeare that mountains, valleys, and plains were created in the beginning, and were before the Floud in the dayes of Noah.

For firſt, if hills were cauſed by the Floud, then it muſt be that the waters ſuffered an extream violent motion: but the waters being over the whole face of the earth had nothing to hinder them from their own free motion, nor any thing to compell them to a violent motion; ſuch I mean as ſhould make them work ſuch wonders as are ſuppoſed. Had they been overtopped by any thing, then indeed running from one place to another there might have been a repercuſſion, and by ſuch contention more ſtrange accidents then were, might have been produced, as the making of hills, and the like.

Or ſecondly, if there were ſuch a violent motion, (as queſtionles the waters moved untill all places were filled alike, with no ſmall violence) yet the violence was not ſo great as to be the parent of the hills and mountains; for then without doubt it would have been ſo forcible alſo as to have turned rivers and changed them from one place to another, caſt down all manner of buildings and ſtructures, rooted up all trees and the like, ſo that after the Floud nothing ſhould have had the ſame name, bounds, and deſcription which before it had, neither would the memories of the former ages have been but buried from all ſucceeding time; which we know is otherwiſe: for if it were not, it is likely that Moſes, ſpeaking of the ſite of Paradiſe, and ſetting down all the rivers

rivers of it exactly, would have ſpecified it in his hiſtorie, that thereby after-ages looking for thoſe places might not miſtake or ſuſpect the truth of his relation. Neither have we juſt cauſe to think that all buildings and ancient monuments of the Fathers before the floud were extinguiſhed in the floud: For it is reported by [l] *Pomponius Mela*, and *Plinie*, concerning the citie *Joppa*, that it was built before the floud, and that *Cepha* or *Cepheus* reigned there; which is witneſſed by certain ancient altars, bearing titles of him and his brother *Phineus*, together with a memoriall of the grounds and principles of their religion. And of the citie *Henoch* there is a much like relation. But what need I mention more, ſeeing [m] *Joſephus*, a writer of good credit, affirmeth that he himſelf ſaw one of thoſe pillars which was ſet up by Seth the ſonne of Adam? and this for the truth of it was never queſtioned, but warranted by all antiquitie.

l *Pom. Mela, lib.* 1. *cap.* 11. & *Plin. lib.* 5. *cap.* 13.

m *Antiq. lib.* 1. *cap.* 3.

Moreover, ſeeing the dove was twice ſent out of the ark, and returned with an olive branch at her laſt return, and not at her firſt, it is not without reaſon that we think the trees were not torn up by their roots, but remained ſtill fixed in the ground even as they had done before; for, if the trees had been ſwimming or floating upon the waters (as ſome may think) then the poore dove might have found one branch or other as well at the firſt as ſecond time. Beſides, when ſhe did bring any thing, Noah took it not as a token what havock the floud had made, but as a ſigne that the waters were decreaſed: ſhe therefore plucked it off from ſome tree growing on the earth, and not floating on the waters.

And laſt of all (although I ſay nothing of the delectation and profit of the mountains, which do thereby even amplifie the goodneſſe of God in his works, creating and not occaſioning them) I ſhall need to point you no further then to the plain text it ſelf, which doth moſt plain-

ly tell us, not that the waters were as high as the higheſt mountains which are now, or were then when Moſes wrote his hiſtorie, but that even from the beginning there were hills and mountains whoſe loftie tops in the univerſall floud were covered with waters: for thus ſtand the words, * *And the waters prevailed exceedingly upon the earth; and all the high hills which were under the whole heaven were covered. Fifteen cubits upward did the waters prevail; and the mountains were covered.* Whereupon, as I remember, [n] one writeth thus, ſaying that this judgement was admirable, ſeeing there are mountains, as *Atlas, Olympus, Caucaſus, Athos*, and other ſuch, that are ſo high, as their tops are above the clouds and windes (as Hiſtoriographers do report it) and yet ſee, all theſe are covered: and theſe being covered, the middle Region muſt needs be drowned; and that being drowned, how could the clouds be thoſe windows of heaven which poured down rain for fourtie dayes? And thoſe not being the windows of heaven, it cannot but be that the waters above the heavens are in a more remote and higher place, even above the concave of the out-ſpread Firmament.

* Gen. 7. 19, 20.

n Ainſ. on Gen.

3. *Object.* But perhaps you may think that I now pitch too much upon reaſon concerning this of the Floud; ſeeing it was cauſed not by naturall and ordinary means, but by the extraordinary power of God.

Anſw. To which it is anſwered, that this floud was partly naturall, partly ſupernaturall; and to ſhew how farre nature had a hand in this admirable effect, we may diſtinguiſh with them, who ſay that an effect may be called naturall two manner of wayes: firſt, in regard of the cauſes themſelves: ſecondly, in regard of the direction and application of the cauſes. If we conſider the meer ſecondary and inſtrumentall cauſes, we may call this effect naturall; becauſe it was partly performed by their

help and concurrence: but if we conſider the mutuall application and conjunction of theſe ſecond cauſes together with the firſt cauſe, which extraordinarily ſet them on work, we muſt needs acknowledge it to be ſupernaturall.

Now then, although we have built upon reaſon, and ſo found that before fourtie dayes fully ended the middle Region it ſelf was drowned, whereupon it could not rain from thence; yet in ſo doing we do not argue amiſſe: for it is no whit derogating from the power of the Almighty to aſcend up higher till we finde the cauſe of this long rain, and alſo the place from whence it came, ſeeing that when we have ſo done we ſhall plainly finde, that in regard of the direction and application of the cauſe it was extraordinarily ſet on work by a divine diſpenſation; and ſo the effect was ſupernaturall.

I may therefore now proceed: and that I may make the matter yet a little plainer concerning theſe cataracts or windows of heaven, and ſo by conſequence of the waters alſo above the heavens, this in the next place may be added; namely, that Moſes ſetteth down two cauſes by which there grew ſo great an augmentation of water as would drown the world: the one was the fountain of the great deep: the other was the opening of the windows of heaven. Now if theſe windows were the clouds, then it ſeemeth that the waters were increaſed but by one cauſe: for the clouds in the aire come from the waters in the ſea, which by deſcending make no greater augmentation then the decreſion was in their aſcending. And although it may be thought that there are waters enough within the bowels of the earth to overflow the whole earth (which is demonſtrated by comparing the earths diameter with the height of the higheſt mountains) yet ſeeing the rain-water is made a companion with the great deep in the augmentation of the drowning waters,

I ſee no reaſon why that ſhould be urged againſt it; eſpecially ſeeing it is found that the earth emptied not all the water within her bowels, but onely ſome: For thus ſtand the words, * *The fountains alſo of the deep, and the windows of heaven were ſtopped, and the rain from heaven was reſtrained:* their ſtore therefore was not ſpent when they had ſufficiently drowned the world, but their fury rather was reſtrained, when they had executed Gods purpoſe by climbing high enough above the hills.

* Gen. 8. 2.

Cardinall *Cajetane* was conceited that there was a mount in Paradiſe which was not overflown, and there forſooth he placeth *Henoch*: The like dream alſo they have amongſt them concerning *Elias*: And, as their champion and Goliah [o] *Bellarmine* is perſwaded, all thoſe mountains onely were overflown where the wicked dwelt. [p] *Joſephus* alſo reporteth out of *Nicholas Damaſcenus*, that the hill *Baris* in *Armenia* ſaved many who fled thither for ſuccour. But theſe are dreams and devices, which are ſoon overthrown by Moſes in his foreſaid evident text; where the words are ſo generall, that they include all and every mountain, under, not onely the Aiery heaven (as *Cajetane* collecteth) but under the whole Heaven without exception.

o Dr. Will. *ex Bel. de gra. pri. hom.*

p *Antiq. lib.* 1. *cap.* 4.

And now after all, what hindereth that there ſhould not be waters above the concave of the Firmament, and that the opening of the windows of heaven ſhould not be more then the looſing of the clouds? For it is affirmed, and not without reaſon you ſee, that the rain, or a great part of it which fell in the univerſall Floud, came from an higher place then the middle Region of the aire: and that the upper waters are to be above the Firmament, and not the parts of it, is an aſſertion well agreeing to Moſes his deſcription of this ſecond dayes work. For (as hath been ſhewed) concerning the fowls and ſtars, it is true that they are but in the Firmament, and not above

it: neither is there any more Firmament then [q] one, ſeeing Moſes mentions not a ſecond. The fowls indeed fly above the earth (as the text it ſelf ſpeaketh in Gen. 1. 20.) but not above the Firmament: their courſe being (as *Junius* reads the place) *verſus ſuperficiem expanſi cœli*; or *ante expanſum*; or *coram expanſo cœli*; but never *ſupra expanſum*. And as for the ſtarres, the text likewiſe ſaith, ver. 15. *Let them be for lights in the out-ſpread firmament*; mentioning never more then one and the ſame Firmament. But for the waters, it is otherwiſe: The Firmament is appointed to ſeparate them, as being between, and not above them. *Eſto expanſum inter aquas* (it is learned *Junius* his right verſion of the place) *ut ſit diſtinguens inter aquas. Fecit ergò Deus expanſum quod* [r] *diſtinguit inter aquas quæ ſunt ſub expanſo, & inter aquas quæ ſunt ſupra expanſum.* That is, *Let there be a firmament between the waters*, &c. *Between the waters*, as having waters above it: And how unlike it is, that the upper waters ſhould be placed otherwiſe, let the former reaſons witneſſe: For, all things conſidered, we need not ſtand ſo much upon *Pareus* his reading *Super, quaſi in expanſo*, and *deſuper expanſo*, as if they were but above, or on high within the concave, as are the fowls and ſtarres: this (I ſay) we need not ſtand upon, ſeeing *Junius* readeth *Supra expanſum*, without any ſuch nice ſalving, although he thinketh with *Pareus* that theſe upper waters are no higher then the middle Region of the aire. And alſo, admit that ſome derive the word *Schamajim* or *Shamajim* (which ſignifieth *Heavens*) from *Sham*, *There*, or *in that place*; and from *Majim*, *Waters*; concluding thereupon that theſe waters which we now ſpeak of muſt be *There*, viz. *in* the heavens, and not *above* them: although ſome (I ſay) make this derivation, yet others derive the ſame word otherwiſe: And no [ſ] few be there, who, not without reaſon, do ſuppoſe that it is no derivative nor com-

q *Neceſſariò fatendum eſt, ſi modo nubes ſint ſuperiores illæ aquæ, duo eſſe expanſa, & ita duo, ut de fabrica illius quod ducitur multo eſt nobilius, nulla ſiat mentio. Lyd. de Orig. font. cap. 10.*

r *Diſtinguit*, a word of the preſent tenſe, noting the preſent performance of that which it was made for.

ſ As Val. Schindl. & Fagius upon Gen. chap. 1. out of Aben Ezra.

compound word at all; but rather that the Iſmaelitiſh word *Schama*, which ſignifieth nothing elſe but *High* or *Above*, doth proceed from this word *Schamajim* which in Engliſh we reade *Heavens*: In which regard the Etymologie helpeth nothing to prove the adverſe part.

And yet (as I ſaid before) let the reader take his choice: For perhaps he may now think after all, that if there be waters above the ſtarry heaven, and that part of thoſe waters deſcended in the time of the Floud, that then the Heavens would have been corrupted and diſſolved (as ſome have ſaid) the rain falling through them from the convexitie of the out-ſpread Firmament.

Sect. 3.

An objection anſwered concerning the nature of the Heavens, examining whether they be of a Quint-eſſence.

BUt concerning this it may be ſaid, that it is not known whether the heavens be of ſuch a nature, as that the rain falling through them ſhould diſſolve or corrupt them. Thoſe indeed who follow *Ariſtotle*, make them of a *Quint-eſſence* altogether differing from things compounded of the Elements: But for mine own part more eaſily ſhould I be perſwaded to think that there is no ſuch fifth eſſence in them, but rather that they are of a like nature with the Elements, or not much differing.

For firſt, although *Ariſtotle* deny any change or alteration to have been obſerved or ſeen in the heavens ſince the beginning of the world; yet he was deceived: For *Hipparchus*, who had better skill in Aſtronomie then ever *Ariſtotle* had, he (as [a] *Plinie* witneſſeth) telleth us out of his own diligent and frequent obſervations that the heavens have had changes in them; for there was in his dayes a new ſtarre like unto that which was once in *Caſſiopea*. And that which is beyond the authoritie of the

[a] *Plin. lib.* 2. *cap.* 26.

the greateſt philoſopher, doth alſo witneſſe as much; I mean the ſacred voice of the everlaſting Spirit, affirming that the two parts of this univerſe, the heavens as well as the earth, do both of them * *wax old even as doth a garment:* which is as if it ſhould be ſaid, that by little and little they are changed, tending ſo long to corruption till at laſt ſhall come the time of their diſſolution.

* Pſal. 102. 26.

What great difference then can there be between the heavens and things here below, ſeeing in their own natures both of them do tend to corruption, and are ſubject to mutation?

Beſides, as it is with Man who is the little world, ſo certainly it is with *Macrocoſme* who is the greater world: but man changeth and declineth daily, not being now as heretofore he hath been; and ſo alſo as a good conſequence it muſt follow, that the greater world doth alſo ſuffer change, and, by declining, alteration. That man declineth, [b] ſaith one, is a thing moſt manifeſt: For men are of lower ſtature, leſſer bones and ſtrength, and of ſhorter lives then their foreſathers were. Now from whence cometh this but from the declining eſtate of the greater world? The earth, we ſee, which is the lower part of it, is not ſo fruitfull as before, but beginneth to be barren like the wombe of Sarah; neither do the fruits which ſhe bringeth forth, yeeld ſo much nutriment as heretofore they have done. And how cometh that to paſſe but becauſe the heaven alſo fainteth? For the Planets wax old and cannot afford ſo great vertue and influence to theſe lower bodies, as in times paſt they did; which [c] *Plinie* and *Aulus Gellius* teſtiſie. And indeed this muſt needs be a manifeſt proof, ſeeing leſſe and weaker bodies are conceived every Age in the wombe of nature, that nature therefore waxeth old and weary of conceiving.

b Dove confut. of Atheiſ. chap. 14.

c *Idem ex Plin. lib. 7. cap. 16. & ex Aulo Gell. Noct. At. l. 13. c. 1.*

Alſo,

Alſo, ſaith he, if a man do but behold the face of heaven, the *Moon* looketh pale and wan, *Mars* leſſe rubicund, *Sol* leſſe orient, *Jupiter* not of ſo amiable and favourable countenance, *Venus* more hypocriticall, and all the reſt both of the wandring and fixed ſtarres more weak and ſuſpicious then they did before. That mighty *Giant, which was wont to runne his unwearied courſe, now waxeth wearie, as if he would ſtand ſtill in heaven, as he did in the dayes of Joſhua; for he ſhineth more dimmely, and appeareth more ſeldome then before, being much nearer to the earth then of ancient times. For, (if we may give credit to the calculations of the chief maſters in Aſtronomie) the Sunne, quoth *Copernicus*, and after him alſo *Stofler*, is nearer to the earth then it was in the dayes of *Ptolomie*, by the ſpace of twenty ſix thouſand, ſix hundred and ſixtie miles: or (as *Philip Melanchthon* ſaith) nine thouſand, nine hundred, ſeventie and ſix miles; to whom (ſaith [d] *Dietericus*) aſſenteth that famous mathematician of our age, *David Origanus*, in his Prognoſtication for the yeare of our Lord 1604.

* Pſal, 19. 5.

d *Diet. Poſtill. Dom. 2. in Advent.*

All theſe are proofs: and although we do not greatly contend concerning this laſt allegation of the ſunnes approach ſo neare us, yet neverthèleſſe the aſſertion in generall is true enough, that the heavens as well as the earth, as they grow older and older, do ſuffer change, and in that regard their natures cannot but be much alike.

Unto which adde this, namely, that theſe viſible heavens, of which we now ſpeak, were taken from that maſſe or lump which lay here below, and that the whole lump was created at once; in which regard it cannot be denied that they differ *toto genere* or altogether, but that they are of a much like nature with inferiour bodies or things here below. And as for *Ariſtotle*, he never would ſo earneſtly have defended the contrary, had he not known

known that it was an excellent means to colour that which he alſo held concerning the worlds [e] eternitie.

[e] *Phyſ. lib.* 8. *cap.* 1. *& alibi.*

But beſides all this, the obſervations of our beſt and modern Aſtronomers make much againſt him: for they have modeſtly and manifeſtly proved,that not onely new ſtarres, but comets alſo have been farre above the moon. As for example,that ſtrange ſtarre which once was at the back of *Caſſiopea's* chair,was of an extraordinarie height above it; for it ſhined without any difference of Aſpect, Parallax, or diverſitie of ſight, even untill all the matter whereof it conſiſted was conſumed; having alwayes (as the obſervers thereof do witneſſe) one and the ſame ſtation to every of the ſtarres, both in all climates, and alſo in all parts of the heaven, no diverſitie of ſight at all obſerved: all which in the lowermoſt Planets is otherwiſe, and perceived moſt of all in the moon,becauſe the Semidiameter of the earth (according to which quantitie we dwell from the centre) hath a ſenſible bigneſſe unto the diſtance of the moons ſphere from us. Had therefore that New ſtarre, Comet, or what you pleaſe to call it, been lower then the moon, and not in the ſtarrie heaven, then (like the inferiour Planets) it would have ſuffered a Parallax or diverſitie of ſight, and never have kept ſuch a regular motion as it did; contending not to be overcome of the ſtarrie heaven in its motion, but to keep as it were an equall pace with it: thereby ſhewing that it was even in the Ethereall heaven it ſelf. For this is a rule, that by how much a ſtarre is higher then the earth, by ſo much it imitateth the higheſt heavens in their daily motion.

Neither was it this ſtarre alone,but others alſo after it, even Comets themſelves, whoſe places were found to be above the moon: for obſerving more diligently and exactly then in former times, the obſervers could eaſily demonſtrate this truth alſo: thinking thereupon that many of thoſe Comets which have been ſeen in former ages,

ages were burnt out, even in the ſtarrie heaven it ſelf, and not ſo many of them below the moon, as generally (without ſerious obſervation) have been ſuppoſed.[f] *Longomontanus* proveth this, both in that laſt Comet which was ſeen in the yeare 1618, and alſo in other Comets before it. And now what of all this? Nothing but onely thus: viz. If Comets be burnt, conſumed and waſted in the ſtarrie heavens, it ſeemeth that there is no great difference between them and things here below: for if there were, it might be thought that they would not ſuffer ſuch earthly matter to aſcend up their territories; ſuch, I ſay, as doth either wholly or in part compoſe them. Wholly or in part I adde, becauſe (perhaps) even the heavens themſelves may afford ſome matter towards the generation of them, eſpecially if they be[g] new ſtarres, ſuch as *Ariſtotle* never ſaw; wherefore he writes that a Comet conſiſteth altogether of an hot, drie, and a kinde of oylie exhalation drawn from the earth: and queſtionleſſe in ſuch as are utterly below the moon it is even ſo; but if they be higher and continue longer, they, as well as new ſtarres, may have ſome help from ſuch matter as the heavens afford towards the generation of ſtrange appearances: which though they have, yet that they have no earthly matter is not excluded, becauſe next under God the efficient cauſe of theſe things is attributed to the ſtarres and their operation; for when they are aptly and conveniently placed and aſpected, then by their power, working upon things here below, they draw up hot, drie, and oylie exhalations, and theſe exhalations afford unto Comets that matter whereof they conſiſt. *Ptolomie* attributeth much in this kinde to *Mars* and *Mercurie*; and ſo do many others elſe beſide him: and why the yearely aſpects of theſe ſtarres do not alwayes produce ſuch effects, is becauſe they are not alwayes aſpected in the ſame manner, but ſometimes in one part

f *Lib. de novis cæli Phænom.*

g For new ſtarres Tycho affirmeth it, *lib. de nova ſtella.*

of the heavens, ſometimes in another, and cannot therefore produce their intended effects, without either the meeting or avoiding of apt or inconvenient occurrences.

But I conclude, and do yet affirm that the nature of the heavens is certainly ſuch, that the waters above the heavens might paſſe or iſſue through them in the time of the Floud, and yet the heavens not be diſſolved, nor ſuffer damage by their falling; damage, neither in corrupting them, nor yet in leaving a vacant place by coming all away: of which in the fourth dayes work, when I come to ſpeak of the ſtarres, I ſhall adde yet ſomething more.

CHAP.

CHAP. V.

How to underſtand the word Heavens; *and of the ſeverall Regions of the aire, together with a conſideration of ſuch appearances as we uſe to ſee there.*

Sect. 1.

AND now to go on with the reſidue of this dayes work: *God* (ſaith Moſes) *called the firmament Heavens*, &c.

By *heavens* in this place Moſes meaneth onely the viſible heavens, becauſe he ſpeaketh onely of the viſible part of the world. And yet the ſame word which is here uſed is ſometimes put for the*aire, wherein windes, clouds, and fowls do flie: ſometimes for the† upper Firmament, where the ſunne, moon, and ſtarres are ſet: and ſometimes for the high places, where* Angels dwell. And hereupon it was that S. Paul mentioned the third†heavens, wherein he ſaw things unſpeakable.

* Dan. 7.2,13.
† Pſalm. 8. 9. Gen. 1. 16. 17.
* Matth. 22.30.
† 2. Cor. 12. 2.

The firſt of theſe is like to the outward court of Solomons temple, and is the moſt open to us.

The ſecond is like his inward court, leſſe open, and abounding with ſtarrie lights or lamps never going out.

And the next is as the *Sanctum Sanctorum*, whither he is entred once for all, who is a Prieſt for ever, and maketh interceſſion for us.

a Biſh. Halls contemplations.

In the two loweſt is no felicitie;for neither the [a] fowls nor ſtarres are happie.It is the third of theſe alone where the bleſſed Trinitie enjoyeth it ſelf, and the glorified ſpirits enjoy it.

And queſtionleſſe in this higheſt part muſt needs be more then exceeding glorie,ſeeing the other two within the concave of the Firmament are ſo full of wonder.

But of the one of them I ſhall need to ſpeak little in this dayes work: yet of the other under it,as being more pertinent, ſomething muſt be added.

Sect. 2. Parag. 1.

Of the Aire and the ſeverall Regions in it.

VVE may therefore now (if you pleaſe) look into the Aire:and here, following the common path, and ſeparating it from the ſtarrie heaven, I muſt ſay that it is divided into three ſtages or Regions: although I verily think (as afterwards ſhall be ſhewed when I come to ſpeak of the ſtarres) that all this ſpace, even from the earth to the eighth ſphere,is nothing elſe but aire.

The higheſt Region.

The higheſt Region is ſaid to be exceeding hot,and alſo drie,by reaſon of the neighbourhood that it hath with the fierie element (as is ſaid) and with the ſtarres;by the force of whoſe beams it receiveth heat, which is alſo much increaſed by following the motion of the heavens.

The loweſt Region.

The loweſt Region is ſomewhat contrary ; for it is ſaid to be hot and moiſt: hot chiefly by the reflection of the ſunne-beams meeting with the earth; and moiſt, by reaſon of the proper nature of the aire,and alſo by reaſon of the vapours exhaled out of the earth and water. This is the qualitie which commonly is attributed to this Region.

But I think that we may rather ſay it is variable; now

hot,

hot, now cold, and ſometimes temperate; differing according to the times and ſeaſons of the yeare: In which regard *Du Bartas* writeth thus,

Warm-temper'd ſhow'rs do waſh it in the Spring;
And ſo in Autumne, but more varying:
In Winter time 'tis wet, and cold, and chill:
In Summer ſeaſon hot and ſoultry ſtill;
For then the fields, ſcorched with flames, reflect
The ſparkling rayes of thouſand ſtarres aſpect.
The chief is Phœbus, *to whoſe arrows bright*
Our * Globie Grandam *ſerves for* But *and* White.

* The earth.

Neither is it altogether variable in regard of time, but alſo by reaſon of the diverſitie of place; ſome climates being more hot and drie, ſome more cold and moiſt then others; which cometh to paſſe according to their diſtance from the Equinoctiall towards either of the Poles.

The middle Region.

Thus for theſe two Regions. But now concerning the middle Region, it is alwayes cold: yet ſurely in its own nature it would be warmer then the Region which is here below, were it not cooled by a cold occaſioned by the reflection of the Sunne-beams: For they, reflecting upon the earth, drive up above the beams of their reflection much cold from below, which being daily ſupplied is kept as a continuall priſoner between the heat above and the heat beneath.

Or, if you will, take it thus, namely that it is cold, but not extreamly cold: yet cold (I ſay) it is in reſpect of the two other Regions which are hotter then it. And this coldneſſe happeneth partly through the cauſes before expreſſed; and partly by reaſon of the Aire in it which cannot follow the motion of the heavens, ſeeing it is hindred by the tops of the mountains. And hereupon it is that the Philoſophers make this a rule, ſaying that [a] *the farreneſſe from a circular motion gives quietneſſe, coldneſſe, and heavineſſe; even as the nearneſſe gives motion,* heat,

a *Remotio à motu circulari dat quietem, frigiditatem, & gravitatem; ſicut propinquitas dat motum, calorem & levitatem.*

heat, and lightneſſe: Which in this thing concerning the middle Region is found to be true, the Aire in it being cold, becauſe it is hindred from following the circular motion of the heavens. But (as I ſaid) it is not abſolutely cold, but reſpectively: For if it were extream cold, then the heat of the Sunne would never paſſe through it to this Region here below; neither would there be graſſe, herbs, and ſuch high trees as are upon the tops of the mountains.

But to proceed; 1. In the higheſt Region, and oft times above it, be generated Comets or Blazing ſtarres, and ſuch like fiery Meteors of divers ſorts. 2. In the middle Region, Clouds, Thunder, Rain, Windes, Storms, &c. 3. In the loweſt Region we have Dews, Miſts, Hoar-froſt, Ice and Froſt. As alſo here is your *Ignis fatuus*, or fooliſh fire, with other Lights burning about graves, or ſuch like fattie places where there is ſtore of clammie or fat oylie ſubſtance for their matter. Theſe Lights are ſeen alſo in fields, and are driven by a gentle winde to and fro untill their matter be conſumed.

Now theſe and every one of theſe, ſeeing they have their cauſes in nature, let us a little view them, both how and what they are: For they who ſend us to God, and his decree in nature, have indeed ſaid what is the true cauſe, but not how it is by naturall means effected. For the manner of producing theſe things doth no leſſe amplifie the power and providence of God, then the things themſelves when they are produced.

Sect. 2. Parag. 2.

Of Meteors, firſt in generall, then how they are divided in particular.

AND theſe things of which we now ſpeak, ſeen in any of the Regions, by a generall name are called

called *Meteors*. And the matter of Meteors, as it is remote, is from the Elements; but as it is propinque or neare, it conſiſteth of Exhalations.

And Exhalations are of two kindes. 1. There is *Fumus*. 2. *Vapor*.

Exhalations are of two kindes.

If it come from the earth or ſome ſandy place, it is *Fumus*, a Fume or a kinde of Smoke.

If it come from the water or ſome watry place, it is *Vapor*. For this is a rule, that *A Fume hath a certain earthly nature in it, and yet is not earth; and a Vapour hath a certain watry nature in it, and yet it is not water*. Or, if you had rather, take it thus; *Fumus eſt mediæ naturæ inter terram & ignem; Vapor verò inter aquam & aërem:* That is, *A Fume is of a middle nature between earth and fire; but a Vapour is of a middle nature between water and aire.*

And further, all vapours are warm and moiſt, and will eaſily be reſolved into water; much like the breath that proceedeth out of a mans mouth, or out of a pot of water ſtanding on the fire: and theſe are never drawn higher then the middle Region of the Aire; for there they are thickened and conglomerated by the cold into clouds. And why vapours are warm, being drawn from that which is cold, is not from any internall propertie of their own, but they receive this qualitie from the power and influence of the ſtars. For after that the matter is by them attenuated or made thin, their beams cannot but warm it, although it proceed from that which is cold.

The nature of vapours.

Why vapours are warm.

Again, all fumes are as ſmokes which be hot and dry; which becauſe they be thin and lighter then vapours, they often paſſe the loweſt and middle Regions of the Aire, being ſometimes carried even beyond the higheſt Region it ſelf.

The nature of fumes.

And thus we ſee how there are two kindes of Exhalations;

Th'one

Th' one ſomewhat hot, but heavy, moiſt and thick;
The other light, drie, burning, pure and quick.

Moreover, theſe Exhalations being the matter of Meteors (as hath been ſaid) are either from the Earth or Water. As for the Fire and Aire, they are mixed with this matter, as with all other things, but not ſo abundantly that they may be ſaid to be the materiall cauſe of any Meteor, although without them none can be effected. And thus much generally. But now more particularly.

Three ſorts of Meteors.

And in coming to particulars, it may be found that theſe kinde of Meteors concerning which I ſpeak, are of three ſorts; either Fierie, Waterie, or Aierie.

Fierie are of two ſorts: either ſuch as are in very deed fired; or elſe ſuch as onely ſeem to burn, which are therefore called *Phaſmata*: In which regard it may be ſaid that theſe Fierie ones are either Flames or Apparitions.

Two ſorts of Fiery Meteors which burn in very deed.

And again in reſpect of their matter, if they be ſuch as burn in very deed, then they be either more or leſſe pure.

Their place where we ſee them is according to the abundance and ſcarcitie, or rather qualitie of the matter whereof they conſiſt: for if it be heavie and groſſe, it cannot be carried high; but if it be not ſo groſſe, but rather light and more full of heat, then it aſpires and tranſcends ſo much the higher by how much it is the lighter; ſometimes above the higheſt Region of the Aire, even into the ſtarry heaven it ſelf; which is witneſſed by our beſt modern Aſtronomers, who have obſerved many Comets above the Moon.

Furthermore, theſe Fiery impreſſions, according to the diverſe diſpoſing of their matter, are of ſeverall faſhions; and thereupon they have ſeverall appellations, being called according unto the names of thoſe things unto which they ſeem to be like.

As 1. *Torches.*
2. *Burning Beams.*
3. *Round Pillars.*
4. *Pyramidall Pillars.*
5. *Burning Spears, Streams, or Darts.* These ſorts are *ignita pura.*
6. *Dancing or leaping Goats.*
7. *Flying Sparks.*
8. *Shooting Starres.*
9. *Flying Launces.*
10. *Fires, either ſcattered, or elſe as if all the aire burned.*
11. *Flying Dragons, or Fire-drakes.*
12. *Wandring Lights.*
13. And alſo *licking* or *cleaving fire*, ſticking on the hairs of men or beaſts.

Now all theſe kindes (of which I have mentioned thirteen) I take to be ſuch fierie Meteors as are ſaid to be pure and not mixt.

Then again have you thoſe which are ſaid to be mixt and leſſe pure: These ſorts are *ignita mixta.*

As 1. Comets of all ſorts.
2. All kindes of lightening.
3. Unto which muſt be joyned thunder, as an adjunct.

And now of theſe ſeverally, before I mention any more of another kinde, whether waterie or aierie.

Sect. 2. Parag. 3.
Of ſuch fierie Meteors as are pure and not mixt.

Article 1. *Of burning Torches.*

1. FAx, which is a *Torch* or *Fire-brand*, or as a lighted candle, is an exhalation hot and drie, drawn beyond the middle Region of the aire, where being arrived it is ſet on fire (as are all exhalations that come there) partly by their own heat, and partly by the heat of that place: and becauſe the matter of the exhalation is long and not broad, and being equally compact, and fired at

the one end, it burneth like a torch or candle, untill the whole whereof it conſiſteth be conſumed. And why it ſhould burn at the one end rather then at the other, is found to be becauſe it is long and ſtandeth upright, having the moſt of its aſpiring matter in the top; and in this ſtation aſcending up, it comes to paſſe, that when the upper end doth preſent it ſelf to the heat of the upper Region, it is fired, and ſo conſumeth by degrees, even as by degrees it aſcendeth, or peepeth into that hot place.

Article 2. Of burning Beams.

2. *Trabs ardens*, *a burning Beam*, is an exhalation hot & drie, drawn beyond the middle Region of the aire; the matter of which exhalation being long & not very broad, makes it ſeem like a beam or logge: and becauſe it is more groſſe and heavie on the under part from the one end unto the other, and on the upper part hath much aſpiring matter equally diſperſed, it is tranſverſly carried up, and ſo being fired it lieth at length, and ſtandeth not upright.

Article 3. Of round burning Pillars.

3. *Round Pillars* are of the ſame nature, unleſſe perhaps their light and heavie matter is not ſo equally or in like order diſpoſed, but rather heavier towards the one end then the other, which makes it be carried up or preſented in perpendicular faſhion; and alſo having the hotteſt and drieſt and moſt combuſtible matter driven to the ſuperficies or out-ſide of it, by reaſon of a contrary qualitied ſubſtance within it, which makes it therefore be fired on all ſides alike, and appeare like a burning Pillar.

Article 4. Of Pyramidall burning Pillars.

4. *Pyramidall Pillars* are nothing differing from the other, unleſſe that the exhalation have more earthly matter in it below, and not ſo much above: for when the lighter and thinner parts are aſcended to the top, then the groſſer, heavier, and thicker are left in the bottome: which makes it therefore of faſhion great beneath and ſmall above.

Article 5. Of Flaſhings, Streams, or Darts

5. *Burning Streams*, *Spears*, or *Darts*, is that Meteor which

which is called *Bolis* or *Jaculum*, and is an Exhalation hot and drie, meanly long; whoſe thick and thinner parts are equally mixt: and thereupon being fired in the higheſt Region, it flameth on the thin or ſubtil part; which neverthelеſſe, becauſe the matter is well mixed, doth alſo ſend fire to the other parts, inſomuch that it ſeems to runne like a dart from the one unto the other.

Or, if you will, this Meteor (or one very like it) is thus generated, viz. when a great quantitie of hot and drie Exhalations (which indeed may fitly be called a drie cloud) is ſet on fire in the midſt, and becauſe the cloud is not ſo compact that it ſhould ſuddenly rend, as when thunder is cauſed, the fire breaks out at the edges of it, kindling the thin Exhalations which ſhoot out in great number like to fierie ſpears or darts, the ſtreaming or flaſhing being ſo much the whiter by how much the Exhalation is the thinner. Such like coruſcations as theſe we uſe to ſee many nights in the North and North-eaſt parts of the skie.

6. *Capræ ſaltantes*, or *dancing Goats*, are cauſed when an Exhalation hot and drie is ſo compact, that on the one ſide or other it hath ſome parts which appeare as the appendices of it, or joyned to the main Exhalation by an other kinde of Exhalation farre thinner then the main one, ſo that the fire running on the main part, and as it were outright, by the way it cannot but ſeem to skip unto thoſe parts on the ſides, inflaming them alſo; which, becauſe it is variouſly and nimbly performed, makes the flame ſeem to leap or dance, juſt as wanton goats uſe to do when they are dancing or playing. *Article 6.* Dancing Goats.

7. *Scintillæ volantes*, or *flying Sparks*, are cauſed when the matter of the Exhalation is not onely thin, but in all parts thin alike, but not compacted or knit together: and not being cloſely joyned, but interrupted by ſmall ſpaces, thoſe parts which come up firſt into the higheſt Re- *Article 7.* Flying Sparks.

 gion

gion are fired before the other that follow, and thereupon they flie abroad like ſparks out of a chimney, even as when ſaw-duſt or any ſuch like matter is caſt into the fire. This Meteor by ſome is called *Stipula ardens*, or *Burning ſtubble.*

Article 8. Of Shooting ſtarres.

8. *Stellæ cadentes*, *Shooting* or *Falling ſtarres*, are cauſed when an Exhalation hot and drie is gathered as it were on a round heap, but not throughly compacted, nor yet ſo apt to aſcend as other Exhalations, which makes it therefore be beaten back again when it comes neare the cold confines of the middle Region; and ſo, hovering aloft, by an * *Antiperiſtaſis*, or repulſion by the contrary to it on every part, it is ſet on fire, and then ſliding away, it appeares as if a ſtarre fell down or were thrown to the earth.

* *Antiperiſtaſis* is a repulſion on every part, whereby either heat or cold is made more ſtrong in it ſelf by reſtraining the contrary.

For, ſhooting ſtarres theſe ſome do fondly call;
As if thoſe heavenly lamps from heaven could fall.

Moreover, ſometimes it is generated after another manner, which is but in reſpect of the diſpoſing of the matter; and then the Exhalation is more long and narrow, which being kindled at the one end burneth ſwiftly to the other, even like a piece of waxed thread being lighted in a fire or candle.

Again, ſome think that this Meteor is not ſo much ſet on fire, as directly under ſome ſtarre or other which gives it a ſhining. But how this can be I cannot well perceive, ſeeing it ſhooteth obliquely as oft as directly downwards.

Article 9. Flying Launces.

9. *Lancea ardens* or *volans*, *A burning* or *flying Launce*, is another fiery Meteor kindled in like ſort that the former was, and hath this name becauſe the matter of it is ſo diſpoſed, that when it is fired it ſeems to be like a Launce.

Article 10. Of the ſeeming burning of the heavens.

10. *Illuminations*, or Fires ſcattered in the Aire, and appearing in the higheſt part of the loweſt Region, are

cauſed

cauſed when very dry and hot Exhalations are drawn up, and meeting with cold clouds are ſent back again, which motions to and fro do ſet them on fire, and then their parts not being thick in equall proportion, but as it were unjoyned together, do ſeem as though Fires were ſcattered in the Aire. Thus one way. But ſometimes the matter of this Exhalation is more nearely conjoyned, and then (if the Exhalation be large) it is as if the whole Aire were on fire, as appeared on the 15 day [a] of November in the yeare of our Lord God 1574; in which yeare about the laſt day of March the ſtrange ſtar in *Caſſiopea's* chair vaniſhed and diſappeared.

[a] Stow in his Abridg. Ann. 1574.

Artic. 11. Fire-drakes, or flying Dragons.

11. *Draco volans*, or *a flying Dragon*, called by ſome a *Fire-drake*, is a Fierie Exhalation whoſe matter is thick and as it were hard tempered together; or rather not ſo hard as conglutinouſly conjoyned: which lump, aſcending to the Region of cold, is forcibly beaten down or back again; by the force of which motion it is ſet on fire; and not onely fired, but alſo bent and violently made crooked: For (as hath been ſaid) the matter of it hangeth ſo conglutinouſly together, that the repulſe divides it not, but by a ſtrange encounter moulds it into ſuch a faſhion as (ſeen afarre off) looks much like [b] a Dragon. This is the opinion of the moſt. But ſome ſay that it is done into this faſhion between two clouds of differing natures, the one hot, the other cold: and ſo perhaps it is ſometimes made.

[b] Paracelſus is perſwaded that it is a fierie living creature bred in the element of the Fire, even as flies in the Aire, fiſh in the Water, and worms in the Earth: affirming that it is of a ſhort life like the Salamander, &c. But if this be not ridiculous, then nothing is.

Artic. 12. Fooliſh Fire, Jenny, or Will with a wiſp.

12. *Ignis fatuus*, or *fooliſh Fire* (ſo called, not that it hurteth, but feareth or ſcareth fools) is a fat and oily Exhalation hot and drie (as all Exhalations are which are apt to be fired) and alſo heavie in regard of the glutinous matter whereof it conſiſteth: in which regard the cold of the night beats it back again when it ſtriveth to aſcend, through which ſtrife and toſſing it is fired, (for in this encounter it ſuffereth an *Antiperiſtaſis*) and

being fired it goeth to and fro according to the motion of the Aire in the ſilent night by gentle gales, not going alwayes directly upon one point, unleſſe the winde be more then ſuch a gale as is commonly called *Aura:* And note that if the winde be any thing big or blowing, then this Meteor cannot appeare at all, becauſe the winde will diſperſe the matter of the Exhalation, not ſuffering it to be conjoyned.

Moreover, ſome think that it may be kindled of it ſelf, although it be not ſo moved as before: and this is performed by the active moving of the heat which is within it, as is ſeen in an heap of moiſt hay which will ſet it ſelf on fire.

Theſe kindes of lights are often ſeen in Fennes and Moores, becauſe there is alwayes great ſtore of unctuous matter fit for ſuch purpoſes; as alſo where bloudie battells have been fought; and in [b] church-yards or places of common buriall, becauſe the carcaſes have both fatted and fitted the place for ſuch kinde of oyly Exhalations. Wherefore the much terrified, ignorant, and ſuperſtitious people may ſee their own errours in that they have deemed theſe lights to be walking ſpirits; or (as the ſilly ones amongſt the Papiſts beleeve) they can be nothing elſe but the ſouls of ſuch as go to Purgatorie, and the like. In all which they are much deluded: For ſouls departed * cannot appeare again; *I ſhall go to him* (ſaith David) *but he ſhall not return to me.* And (ſaith Job) *He ſhall return no more to his houſe, neither ſhall his place know him any more.* Or (as it is in the Pſalmiſt) *Before I go hence and be no more ſeen.* So that if they walk, ſure it is inviſible, for (ſaith the Scripture) They ſhall be no more ſeen. But what need I urge that? For we ſee that they cannot at all return, but are * *ignorant of all things done under the ſunne*; and as it was with Dives and Lazarus, ſo it is with every other. Wherefore we may well ſay thus,

b Taken therefore (but falſely) for the ſouls of the departed: as you may ſee if you look but a little further.

* 2. Sam. 12. 23.

Job 7. 10. Pſal. 103. 15, 16. and Pſal. 39. 15.

* Eccles. 9. 5, 6.

1. If

1. *If after death ſouls can appeare,*
Why then did Dives crave,
That one his brethren word might bear
What pains the damned have?
2. *Or if there be * another room* * Eccles. 9. 10. Hoſ. 13. 14. John 17. 24.
Which is not Heav'n or Hell,
*How ſcap't the * begger from the doom* * Luke 16. 22. and chap. 23. 43.
Of Purgatories cell?
3. *What ſhall become of Chriſts deare * bloud,* * 1. John 1. 7, 9.
If after death there be
A way to make our own works good,
And place the ſoul in glee?

Queſt. But, if theſe lights be not walking ſpirits, why is it that they leade men out of their way?

Anſw. They are no ſpirits, and yet leade out of the way, becauſe thoſe who ſee them are amazed, and look ſo earneſtly after them that they forget their way; and then being once out, they wander to and fro, not knowing whither, ſometimes to waters, pits, and other dangerous places; whereupon the next day they will undoubtedly tell you ſtrange tales (as one ſaith) how they were led up and down by a light, which (in their judgement) was nothing elſe but ſome devil or ſpirit in the likeneſſe of fire which fain would have hurt them. But of this enough: and know laſt of all, that if one be ſomething neare theſe lights, and the night calm, then going from them they will follow us, becauſe there being no winde to hinder, we draw the Aire after us; or going towards them they go from us, becauſe we by our motion drive the Aire before us.

Of Helena, Caſtor and Pollux.

Moreover, when the like matter chanceth to be fired in ſome ſuch part of the Aire as is over the Sea, then theſe lights appeare to marriners, and are called *Caſtor* and *Pollux*, if there be two at once; otherwiſe *Helena*, if there be but one: The reaſon of which names was this;

Helena

Helena was the daughter of *Jupiter* and *Leda*, and by the heathens ſhe was taken for a goddeſſe, but not for a goddeſſe of good fortune: for this *Helena* was the cauſe of *Troyes* deſtruction; as thus. She was ſtollen away by *Paris* the ſonne of *Priamus* K. of the *Trojans*, ſtollen, I ſay, out of *Greece*; whereupon her two brothers *Caſtor* and *Pollux* ſayl to ſeek her, but they were never heard of more, or ſeen after: which loſſe of theſe brethren made it be ſuppoſed that they were tranſlated into the number of thoſe gods who uſe to give good ſucceſſe to marriners; for they were loſt at ſea; which is, as if they were tranſlated from thence. Now then the Seamen having ſeen by often experience that one light was to them a ſigne of ſome tempeſt, and that two lights were a ſigne of fair weather, they called the one light *Helena*, and the two lights they called *Caſtor* and *Pollux*.

Queſt. But why ſhould it be, may ſome demand, that they ſhould thus appearing ſhew either fair or foul weather? can any reaſon be ſhewn for it?

Why two lights at once ſhew fair weather, and one light foul weather.

Anſw. It is anſwered, that one flame alone may be a ſigne of tempeſt or foul weather, becauſe, that as that matter which burneth is ſo compact into one that it cannot be diſſolved into two; ſo in like manner the matter of tempeſt being exhaled, by the like cauſe is kept from being diſſipated, and is ſo cloſe together that before any long time it muſt needs work.

And again, when two lights appeare, why then it ſhould be fair, it is becauſe there is not the like working in nature which was before; but rather the contrary: for as this Exhalation of the lights is divided; ſo the matter, which otherwiſe might be fit for tempeſt, is not thickened, but by the like cauſe is alſo divided, ſcattered, and eaſily diſſolved: inſomuch that it cannot work ſo as at other times, when there

is a working to compact, and not to diſſipate.

13. *Ignis lambens* is a cleaving and licking fire or light; and is ſo called becauſe it uſeth to cleave and ſtick to the hairs of men or beaſts, not hurting them, but rather (as it were) gently licking them. Theſe flames may be cauſed two wayes, as the learned write. *Artic.* 13. Licking Lights.

Firſt, when clammie Exhalations are ſcattered abroad in the aire in ſmall parts, and in the night are ſet on fire by an *Antiperiſtaſis*; ſo that when any ſhall either ride or walk in ſuch places as are apt to breed them, it is no wonder that they ſtick either on their horſes, or on themſelves.

Secondly, they may be cauſed another way, viz. when the bodies of men or beaſts, being chafed, do ſend out a fat and clammie ſweat; which (according to the working of nature in things of this kinde) is kindled and appeareth like a flame. Virgil makes mention of ſuch a fire as this, upon the head of *Iulus*, the ſonne of *Æneas*;

Ecce levis ſummo de vertice viſus Iuli
Fundere lumen apex, tactúque innoxia molli
Lambere flamma comas, & circum tempora paſci.

Virg. Æneid. lib. 2. prope finem.

Behold, the lively crown
Of ſoft Iulus head
With light was circled round:
A flame his temples fed.
But toucht, not having hurt, nor feeling harm,
The licking fire his hairs would ſcarcely warm.

Livie alſo maketh mention of two others, upon whom the like Meteor appeared: For *Servius Tullius*, when he was a childe, even as he lay ſleeping, had his hair on his head as if it were all on a fire. And upon the head of *Marius*, that worthy Romane, was the like appearance, even whileſt he was making an oration to his ſouldiers. And I my ſelf do alſo know one, who hath often proteſted to me, that as he lay in his bed one night, his head

was all on a flame; which hurt him not, although it greatly ſcared his wife and him, as I have heard them both confeſſe. Moreover, others teſtifie how they have been ſcared in their beds by a kinde of light ſticking to their coverings, like dew upon the nap of a frieze coat: which muſt needs be this *Ignis Lambens*, cauſed by ſome kinde of clammie ſweat proceeding from among them. For, that a clammie ſweat will cauſe theſe things, is manifeſt in the nimble currying of a foggie horſe; viſible ſparks appearing and coming from him, if it be done in the dark. But of theſe kindes of fierie Meteors enough.

Sect. 2. Parag. 4.
Of ſuch fierie Meteors as are impurely mixt.
Article 1. Of Comets.

Why ſome fierie Meteors are leſſe pure then others.

NOw follow thoſe which are *Ignita mixta*, and leſſe pure; coming ſo to paſſe when the Exhalation, through the admixtion of ſome vapour, is more ſlimie, groſſe, and impure: For thoſe Meteors already deſcribed were meerly Fumes without the admixture of Vapours; unleſſe it might be ſome little in one of a glutinous nature or compoſition. Now theſe *Ignita mixta* are uſually divided into two ſorts: for they are either ſuch as continue long; or elſe ſuch as are but for a little while.

Thoſe that continue long, are Comets or blazing ſtarres.

What Comets are.

And a Comet is a fierie Meteor, whoſe matter is an Exhalation hot and drie, fat and clammie, drawn by vertue of the heavenly bodies into the higheſt part of the aire (and ſometimes into the ſtarrie Region) where it is cloſely conglutinated into a great lump, by reaſon of ſupply that it hath from below, ſo long as there is a working to exhale it: and being thus compacted and exhaled, it is ſet on fire in convenient time by the exceſſive heat of the place where it reſteth. Sometimes it continues burning

long; ſometimes but a little while: ſeven dayes is the leaſt time; whereas ſome have been ſeen * ſix moneths: all which cometh to paſſe by reaſon, either of the paucitie, or plentie of the matter whereof it conſiſteth. That laſt Comet which was ſeen of us, viz. *Anno Domini* 1618, was perſpicuous by the ſpace of one moneth; namely from the 18 day of November untill the 16 day of December next following; and was farre above the higheſt Region of the aire, overlooking even the moon her ſelf, as *Longomontanus* proveth in a book of his, where he treateth of new ſtarres, and ſuch appearances as have been ſeen in the heavens, ſince the yeare of our Lord God 1572.

* Plinie maketh their ſhorteſt time to be ſeven dayes, and their longeſt 80 dayes, *lib.* 2. *cap.* 25. but we finde it otherwiſe: And therefore there is a fault; 80 being put for 180, which might come to paſſe by the loſſe of a C.

But in a Comet two things eſpecially are conſiderable: the one the colour; the other the faſhion: both which ariſe out of the diverſe diſpoſing of the matter.

Three principall colours in a Comet.

Their colours are principally three. 1. If the matter be thin, then the colour is white. 2. If meanly thick, then the colour is ruddie, looking like fire. 3. If very thick, then their colour is like the burning of brimſtone, or of a blew appearance.

Yet know that they are not alwayes exactly of theſe three colours without any difference, but as neare them as the diſpoſing of their matter will ſuffer: as in ſtead of white we ſometimes have them of a yellowiſh colour; in ſtead of blew, of a watchet or greeniſh colour, and the like.

Two chief faſhions in a Comet.

Concerning their faſhions (if we ſtand upon a curious examination of them) they may be manifold: and yet, as *Ariſtotle* accounteth, they are principally but two, all their other ſhapes being dependant on theſe two. For firſt either they ſeem round, having beams round about them; which cometh to paſſe when the matter is thin on the edges, and thick every where elſe: or ſecondly, they ſeem as it were with a beard or tail; which cometh to

paſſe when it is but meanly thick towards ſome one ſide or other, and rather long then round. But ſome would have theſe two faſhions to be three, becauſe the tail ſometimes hangs downward as well as ſidelong: and ſo there is by this means *ſtella crinita, ſtella caudata*, and *ſtella barbata*; concerning which I am not much ſolicitous.

The ſtrange effects of Comets.

That therefore which in theſe things I do much more wonder at, is the ſtrange and admired multitude of effects which are produced by them; as not onely change of aire, but change of heirs alſo, proceeding from the diſturbance of ſtates, tranſlation of kingdomes, bloudy warres, and death of Potentates. Hiſtories have carefully recorded theſe things, and left them to the conſideration of after-times.

Firſt therefore let it be obſerved, that when the kingdome of the Macedonians came to an end, in the laſt yeare of *Perſeus*, which was about the yeare 584 or 585 of the building of Rome, a[a] Comet appeared, as if it came to point out the laſt period of that kingdome.

Secondly, when the Emperour *Jovian* attained to the empire, ſucceeding the Apoſtata *Julian*, under whom the Church ſuffered much perſecution; when (I ſay) the ſaid *Jovian* was Emperour, and that under him both Church and Commonwealth were like to have had a[b] flouriſhing time (had he not been taken away by ſudden death) then alſo[c] appeared a Comet, ſhewing that further trouble was yet to be expected.

Thirdly alſo, when a certain captain of the Goths, an Arian, named *Cajan*, had raiſed ſedition againſt the Emperour *Arcadius*, God ſhewed by manifeſt wonders that both *Arcadius* and his citie ſhould be well protected: but before this tumult (ſaith[d] *Carion*) a ſtrange Comet was ſeen, great and terrible, caſting flames down to the very earth; the like whereunto no man had ever ſeen before.

a *Carion, ex Seneca, lib.* 2.

b *Socrat. lib.* 4. *cap.* 22.

c *Carion, lib.* 3.

d *Lib.* 3. *pag.* 294.

4 And again, other authours make mention of a ſtrange Comet ſeen in the yeare of Chriſt 410, being like unto a two-edged ſword, which portended many miſchiefs. For Rome was taken about the ſame time by *Alaricus* King of the Goths. Sundry calamities happened both in the Eaſt and Weſt;and ſo great ſlaughters of men were about thoſe dayes, as no age ever afforded the like. All *Europe* was in a manner undone, no ſmall part of *Aſia* was affrighted; and *Africa* alſo was not void of thoſe evils. Warre, Famine, Drought, and Peſtilence, all of them ſtrove (as it were) to trouble the whole world.

5. Alſo in theſe yeares,viz. 1400,1401,[e]1402,1403, Comets appeared,and great calamities followed;ſundry and unheard-of diſeaſes were felt, rivers dried up, and plagues were increaſed. *Tamerlain*, K. of the Scythians and Parthians, with an innumerable hoſt invadeth *Aſia*, calling himſelf the WRATH OF GOD, and DESOLATION OF THE EARTH; as did *Attilas*, of whom it is written, that he named himſelf THE SCOURGE OF GOD.

6. Alſo in the yeare 1529 appeared[f] foure Comets: and in the [g]yeares 1530, 1531, 1532, and 1533, were ſeen in each yeare one: (***Lanquet ſaith that there were three within the ſpace of two yeares) upon which,theſe and the like changes and calamities followed; (viz.) A great ſweating ſickneſſe in England, which took away whole Myriads of people. The[h] Turk,in the quarrell of *John Vvavoyda*, who laid claim to the crown of *Hungary*, entred the ſaid kingdome with two hundred and fiftie thouſand fighting ſouldiers; committing againſt the inhabitants thereof moſt harſh and unſpeakable murders, rapes, villanies, and cruelties. A great famine and dearth was alſo in *Venice* and the countrey thereabout, which ſwept away many for lack of ſuſtenance. The ſweating

e Of this Comet you may reade in *Carion, lib.* 5. *pag.* 854.

f *Alſt. Chron. cometarum.*

g *Goclen. Phyſ. Lanquet. Chron. & in contin. Chron. Euſeb.*

* So alſo a certain Germane in the continuation of Euſeb. Chron.

h Buchol. in his chron.

ſicknes* alſo vexed *Brabant*, and a great part of *Germanie*, and eſpecially the citie *Antwerp*, where it conſumed five hundred perſons in the ſpace of three dayes. Great warres concerning the Dukedome of *Millain* between the Emperour *Charles* the fifth, and *Francis* the French King. All *Luſitania* or *Portugall* was ſtruck with an Earth-quake; inſomuch that at *Uliſippo* or *Lisbon*, a[h] thouſand and fifty houſes were thrown down, and 600 ſo ſhaken that they were ready to fall, which made the people forſake the citie and runne into the fields: and as for their churches, they lay upon the ground like heaps of ſtones. Upon this followed a great peſtilence in thoſe parts. But a little before, viz. in the yeare 1530, was a great deluge in *Brabant*, *Holland*, *Zeland*, and the ſea-coaſts of *Flanders*; as alſo an overflowing of the river *Tyber* at Rome, occaſioned by unſeaſonable tempeſts of winde. Upon the neck of which troubles the Turk comes again into *Hungarie* and *Auſtria*; but he was beaten back, and a great company of his men ſlain and taken. Unto which may be added how the ſect of the Anabaptiſts, not long after, brought new tumults into *Germanie*.

* *Idem, ibid.*

h In Lanq. Chron. it is 1400. *Vide Ann. Dom.* 1531.

7. And for that laſt Comet, in the yeare 1618, ſaith a Germane writer, *Præſagium ipſius jam eheu eſt in manibus noſtris*; meaning that they felt by dolefull experience the [i] ſad events which followed after it.

i *Bellum Bohemicum & Germanicum oritur, quod hodiéque affligit patriam noſtram Germaniam. Alſted. Chron. mirab. Dei. Fuit etiam anteceſſor mortis Matthiæ Imperatoris.*

Wherefore ſeeing theſe and the like accidents have been attendant upon the appearing of Comets, it may well be ſaid that although they have their cauſes in nature, yet *Nunquam futilibus excanduit ignibus æther*; The skie never burnt with ſuch fires in vain. For (as one ſaith) *Loquitur cum hominibus Deus, non modò linguâ humanâ, per Prophetas, Apoſtolos, & Paſtores; ſed nonnunquam etiam ipſis Elementis in formas & imagines diverſas compoſitis:* That is, *God ſpeaketh with men, not onely with the tongues*

of

of men, by Prophets, Apoſtles, and Teachers; but ſometimes alſo by the very Elements compoſed or wrought into divers forms and ſhapes; there being a Theologicall end of ſending Comets, as alſo a Naturall and Politicall end.

But firſt (before I come to that) I think it not amiſſe to ſpeak ſomething concerning theſe their events and accidents; namely whether it can be ſhewed why they ſhould be wrought either ſo or ſo.

Why warres, deaths, famines and the like, are the effects of Comets.

To which it is anſwered, that in ſome ſort we may give reaſons for this, and ſhew the cauſes of their ſignifications. For being Comets they conſiſt of many hot and drie Exhalations: And hot and drie Exhalations do not onely ſtirre up heat, drie and parch the aire, which may cauſe drought (eſpecially when much of the earths fatneſſe is drawn away with the Exhalation) and drought bring barrenneſſe: but alſo the bodies of living creatures upon the diſtemper of the aire are mainly hurt, ſuffering detriment in the conſumption of their radicall moiſture, and ſuffocation, through the poyſonous breathings which the bellows of the bodie ſuck in, and receive: inſomuch that there cannot but be ſickneſſes, plagues, and much mortalitie.

Beſides which, that they ſhould uſher in warres, ſeditions, changes of kingdomes, and the like, may alſo proceed from the ſame cauſe: For when the Aire is diſtemperately heated, then it is very apt ſo to diſorder and dry up the bloud in humane bodies, that thereby great ſtore of red and aduſt choler may be purchaſed; and this ſtirreth up to anger with the thought of many furious and violent actions; and ſo by conſequent to warre: and from warre cometh victorie, from victorie proceedeth change of commonwealths, and tranſlations of kingdomes, with change of Laws and Religion: for, *Novus Rex, nova Lex; New Lords, new Laws.* Unto which alſo may be added, that becauſe great perſonages live more

delicately then other men, and feed more daintily, having as many new faſhions in their diets as in their clothes, for their boards as for their backs, that their bodies therefore are more ſubject to infection, and will take the poyſon of an intemperate aire before more temperate livers; whereupon neceſſity inforceth that they die ſooner in ſuch a calamitie then other people, as he once witneſſed that ſaid, *Plures pereunt gulâ quàm gladio.*

Beſides, the death of great ones is more remarkable then when inferiour perſons die, ſo that if but ſome of them be taken away in common calamities, it is as if they were onely aymed at; becauſe they are obvious to every ones eye, as cities ſtanding upon hills, which cannot be hid.

Our bodies follow the temper of the aire: and our mindes do ſomewhat ſympathize with the bodie.

And now that our bodies ſhould follow the temperature of the Aire, is nothing doubted, ſeeing every lame, aking, or bruiſed joynt doth witneſſe it even to the very ignorant: But that our mindes and manners ſhould follow the temperature of the bodie, is more ſtrange and wonderfull. Yet true it is that by the mediation of humours and ſpirits, as alſo through ill diſpoſed organs, the minde alſo ſuffereth. For the bodie is *Domicilium animæ*, the ſouls houſe, abode and ſtay: ſo that as a Torch (ſaith † one) gives a better light, and a ſweeter ſmell, according to the matter it is made of; in like manner doth our Soul perform all her actions, better or worſe, as her organs are diſpoſed: or as wine ſavours of the cask where it is kept, ſo the ſoul receives a tincture from the body, through which it works. For the Underſtanding is ſo tied to, and captivated by his inferiour ſenſes, that without their help he cannot exerciſe his functions; and the Will being weakened ſo as ſhe is, hath but a ſmall power to reſtrain thoſe outward parts, but ſuffers her ſelf to be overruled by them: of which I ſhall have occaſion to ſpeak

† Burton, in his Melancholy.

ſpeak more in the † fourth dayes work, untill when I leave it; in the mean time adding, that Comets do not alwayes, when they bring ſickneſſes, corrupt the aire through immoderate heat and drineſſe, but ſometimes alſo through immoderate heat and moiſture; as alſo by immoderate windes which may bring the poyſon of the Exhalation whereof the Comet conſiſted, unto ſome ſuch place as lieth obvious unto it, and the like. Yea and upon the raiſing of windes come often ſhowers and rains, or elſe overflowings of banks upon high tides and other loftie waters, which are forced over upon the violence of the windes.

† Chap. 7. ſect. 3 parag. 2. art. 1.

Aſtrologers ſay that Comets do moſt hurt either unto thoſe places to which they are verticall, or unto thoſe countreys which are ſubject to the ſigne wherein they are (for they maintain that ſuch and ſuch countreys are ſubject to ſuch and ſuch ſignes:) but omitting part of that, they alſo tell us (which ſtands with good reaſon) that in earthie drie ſignes they produce barrenneſſe by reaſon of drought; in wateriſh ſignes barrenneſſe alſo by reaſon of too much wet; in aierie ſignes extraordinary winde; in ſignes of a fierie triplicitie, extraordinary heat, warres, fires, drought, and the like; and in all of theſe (ſeeing their operation is extraordinary) ſome one perilous and infectious ſickneſſe or other.

How to gueſſe at the ſignification of Comets.

Beſides, they alſo [i] tell us that if a Comet be in faſhion like unto a ſword, it then ſignifieth warres and deſtruction of cities, &c. If it be *ſtella crinita*, or blazing round about, and of divers colours; then it ſignifieth winde, ſeditions, hereſies, and the like: but if it be blackiſh, with a ſhort tail, and no hairs; then it is a ſigne of barrenneſſe, together with long and continued warres.

i *Origanus de effectibus*, pag. 526, *ex Cardano.*

But know now that although theſe and the like accidents be produced by Comets; yet if Comets ſhould not be, the caſe would be farre worſe for mankinde, and more

readily would eager death ſeize upon him. For if that which is the matter of Comets were not taken into one place, and drawn, ſo as it is, up into the aire; it would kill us by being diſperſed about our dwellings: ſuch being the nature of their poiſonous Fumes, as they by experience know who have ſeen the danger of damps whileſt they played the part of Pioners under ground.

The ſeverall ends of Comets.

Wherefore let me adde, that the end for which Comets are, is threefold: for either they appeare for a Politicall end; for a Theologicall end; or for a Naturall end.

Politicall.

In reſpect of a Politicall end they are ſo to be taken for the Heralds of future calamities, that men being forewarned may be forearmed, and provided either to ſhun the threatned diſaſter, or elſe to endure with patience the common and inevitable miſery.

Theologicall.

In reſpect of a Theologicall end, they are either a ſigne of calamities, or elſe the efficient cauſe of calamities. If they be a ſigne, then their end is this, viz. that they may be monitours, inſtigatours, and admoniſhers to repentance; and to deſire and expect either the turning away, or mitigation of thoſe publick puniſhments. But if they be the efficient cauſes of miſerie, then their Theologicall end is, that they are ſent as the inſtruments of puniſhing ſome ſuch enormous malice and contumacie of mankinde as would not be kept under or reſtrained by any humane law or diſcipline.

Naturall.

And laſtly in reſpect of a Naturall end, it is that thoſe peſtiferous windes, ſpirits, or breathings, which are gathered from metallique liquours and the like in the earth, ſhould be taken up farre into the aire from the common ſeat of men, that thereby we may partake the leſſe of their malice: for being burnt out and conſumed there, they can leſſe hurt us, then if they were below. If they ſhould remain in the earth, they then (as they often do) would rend and ſhake it: or ſhould they remain

below in the neare neighbouring aire, they would poiſon us [k] ſooner then above; becauſe if the aire be infected when they are on high and a great way from us, much more would it be infected ſhould they be below and round about us.

But of Comets I have ſaid enough. And now methinks I am led from them to a conſideration of ſuch appearances as are called New ſtarres; ſuch as were in the yeares [l] 1572, 1596, 1600, 1602, 1604, and 1612.

Artic. 2.

Of New ſtarres, and eſpecially of that which was in the Conſtellation of Caſſiopea, Anno Dom. 1572.

NOw here I muſt confeſſe that I know not what to write: for how they are generated, or what they ſignifie, is a matter of moſt intricate queſtion.

Noble *Tycho*, that Phenix of Aſtronomie, and after him *Longomontanus*, with certain others, have been perſwaded that they were more then Comets, and generated farre otherwiſe, or of other matter then fierie Meteors are; being firſt ſet awork ſo to think by the ſight of that ſtrange and admirable New ſtarre which was ſeen in the conſtellation of *Caſſiopea*; ſeen from the ninth of November in the yeare 1572, untill the laſt of March in the yeare 1574.

Which ſtarre was indeed truely admirable, and (as I may ſay) attended with a ſad event; I mean that cunningly plotted Maſſacre of Proteſtants in *France*, at the ſolemnization of a marriage between *Henry* of *Navarre* chief of the Proteſtants partie; and lady *Margaret*, ſiſter to the French King *Charles* the ninth, then reigning, and chief authour of the foreſaid Maſſacre: at which wedding there was not ſo much wine drunk as bloud ſhed; thirtie thouſand Proteſtants and upwards, of the beſt and moſt potent, being ſent through this Red ſea to the land of Canaan.

k Witneſſe the great plague which was in Portugal Ann. Dom. 1531, occaſioned by vapours which through a breach of ground in an earthquake iſſued forth and poiſoned the aire. Lanq. Chron.

l After which were theſe appearances, it not new ſtarres, yet moſt of them ſupralunary Comets: as in the yeare 1577, which Sibylla Babylonica prophecied of (as may be ſeen in Tycho) ſhewing that it ſhould ariſe about foure yeares after the vaniſhing of Caſsiopea's ſtarre; which was true incluſively: and in the yeares 1580, 1585, 1590, 1593; and in the yeare 1596 (but this was a New ſtarre) and in the yeares 1607, and 1618.

Or if this New ſtarre were not attended with that particular accident, becauſe the[a] Maſſacre was in Auguſt, and the ſtarre appeared not untill[b] two moneths after; yet we may hope, that riſing after ſuch a butcherie, and ſo ſoon after it as it did, that therefore it came to animate diſtreſſed Chriſtians, ſhining at the firſt with a cheerfull countenance, but at the laſt turning into a martiall and bloudie hue: as if in ſo doing, he which ſent it would have the world take notice that his righteous ſervants ſhould ſee truths enemies (be they where or whom they will) confounded at laſt by martiall diſcipline; and that thoſe who had made havock of others ſhould be troden down at laſt themſelves, although for a time they fairly bore it out.

a Viz. on Bartholomew day. Calviſ.

b Viz. on the ninth of November.

But by what inſtruments the execution of theſe projects ſhould be performed, we cannot tell. Yet this I verily think may be ſaid, that thoſe late, bleſſed, and admired proceedings of the proſperous and ſucceſſefull Gustavus Adolphus King of *Sweden*, whoſe manifold and ſudden conqueſts made him a ſpectacle to the aſtoniſhed world, that thoſe (I ſay) do point us to him above all men, as being the man appointed to ſhew the firſt effects of that ſtrange ſtarre; and that it was to have an operation farre ſurpaſſing the ſaddeſt conſequents of former threatning Comets.

To which purpoſe I finde, that learned *Tycho* hath added a kinde of propheticall concluſion to that book of his which he wrote concerning this New ſtarre; wherein he declareth (according to his modeſt and harmleſſe rules of art, proceeding in them not like a doting heatheniſh ſtarre-gazer) that the effects were to be declared by[c] ſucceeding events: which as they ſhall not begin (ſaith he) untill ſome yeares after the apparition, ſo they ſhall continue for a long time afterward. The beginning of the effect, or ſome part of it, was to fall out after

c And therefore he could not then name any one in particular.

after the third ſeptenarie of yeares from the firſt appearing of the ſtarre (as he alſo writeth) which was after one and twentie yeares; about which time I plainly finde that the foreſaid [d] King was born: For the time of his birth falleth into the yeare 1594, which is the very next yeare after the one and twentieth yeare from the ſtarres firſt riſing; ſo that the yeare of his conception falleth into the very one and twentieth yeare it ſelf: or, if you account incluſively from the yeare of the ſtarres vaniſhing, unto the yeare of the King of *Swedens* appearing, or entrance into the world, then not his conception, but his birth, falleth into the ſaid one and twentieth yeare. Which thing is alſo ſomewhat agreeable to *Tycho* his own meaning, where he telleth us (although he nameth no particular perſon) that thoſe noble Heroes which ſhall happen to be born at the firſt riſing of this ſtarre, are ordained to be the authours and atchievers of ſuch great mutations as ſhould then be, when the men ordained for them came to be fit, and of ripe age to work them. Thus he; the difference between us being, that he applyeth it to the birth of ſuch eminent men as were to be born when the ſtarre firſt appeared; and I to that time when (according to his conjectures) the operation of it firſt began: which, albeit he caſteth it into the yeare 1592, muſt not be untill the yeare after, being the one and twentieth yeare from the ſtarres firſt riſing, and the very yeare of the King of *Swedens* conception: For he was born on the laſt day of November in the yeare 1594; being alſo (as hath been ſaid, both terms included) the very one and twentieth yeare from the ſtarres firſt vaniſhing.

d The King of *Sweden* born at ſuch time as the ſtarre began its operation.

Neither doth the time of his birth fall out thus fitly, but the place likewiſe, which was to be the ominous neſt concerning the occaſion, or bringing forth of one, for the authour or beginning of the intended alterations, is

The place pointed at by the heavens hath 62 degrees of North latitude.

pointed at by the heavens to be ſuch a place as hath for its latitude about 62 degrees from the Equator northwards; for in that parallel the ſtarre moved day by day, and was verticall once every day to *Norvegia, Swedia, Finlandia, Livonia, Moſcovia,* and *Tartaria*, with all ſuch places as lie under the ſame parallel.

Now though the ſtarre in his daily motion was in this manner verticall to more places ſucceſſively then to the King of *Swedens* dominions; yet at the time of the next new Moon (which *Tycho* maketh a rule concerning the place, from whence either the occaſion, or authours of the great changes ſhould proceed) it was juſt over the Meridian of *Finland*, being verticall to that countrey: And who but the foreſaid GUSTAVUS ADOLPHUS King of *Sweden* hath the countrey of *Finland* as a part of his dominions? For he is not onely King of the *Sweds, Gothes* and *Vandals*; but alſo great Prince of *Finland*.

Tycho, I confeſſe, doth not directly name the countrey of *Finland*, but choſe rather to expreſſe the place by callng it *Moſcovia*, or *Ruſſia*, bordering upon *Finland*: wherein I finde (according to the obſervations of a learned and great Divine) that he was ſomething miſtaken. For in a book lately ſet forth, and intituled *The new ſtarre of the North*, the ſaid Authour, having made ſome obſervations from *Tycho's* writings concerning that ſtarre, and applied them unto theſe times, doth manifeſtly prove that it ought rather to be *Finland* bordering upon *Ruſſia*, then *Ruſſia* or *Moſcovia* upon *Finland*: withall, amongſt other reaſons which ſhould make *Tycho* chooſe that place, rendring this for one, that perhaps he was loth to bring the prediction too neare home, ſeeing there often happened divers diſtaſtes and quarrels between his Soveraigne the King of *Denmark*, and the neighbouring King of *Sweden*: Which, upon this

this ground may the better be granted, viz. becauſe *Tycho* was once fain to hide his head for denoting in too direct terms a prediction too neare his own home, although it afterwards proved true. But I referre you to the book, and proceed.

And now we ſhall ſee, that not onely the time of his birth and place pointed at by the heavens, but the chief time alſo when the ſtarres influence ſhould be moſt perceived, doth point at him. For *Tycho* witneſſeth that about the yeare 1632 (if not alſo a few yeares after) the chiefeſt force and influence of this ſtrange ſtarre ſhould ſhew it ſelf, the greateſt ſignifications depending upon the Trigonall revolution and tranſmutation of the Planets: which force and influence, why he referreth it to thoſe times, I leave to the admired perfection of his art, wherein he was a kinde of Phenix, and ſcarce hath left his parallel. For will you heare King JAMES of bleſſed memorie, and our late learned Soveraigne ſpeak for him? his commendations then will ſurely be no leſſe. For in certain verſes (as being able to judge both of him and his treatiſes) he approves his labours, and commends his skill as ſuperexcellent. The like alſo he doth in an Epiſtle which he wrote unto him: ſome of which verſes, as I finde them engliſhed, are to this effect,

Great Tycho's *labours alſo do fore-ſhow*
Events, which ſhall befall on earth below;
And by diſaſterous or fair Aſpects,
What deſtinies on kingdomes God directs.

Now then, if the chief effects ſhall demonſtrate themſelves about the yeare 1632, queſtionleſſe the King of *Sweden* muſt not be baulked in his late proceedings, but taken as a prime man upon whom the beams of this New ſtar hath ſhined: for his great famous victories, and never enough admired conqueſts in *Germanie* (that *Sedes belli*) atchieved in ſo ſhort a time, have witneſſed as much.

Nay,

Nay, when I heare himſelf ſpeak to his ſouldiers, and thoſe citizens where he conquered, I am confirmed. For ſpeaking to the men of *Norimberg*, thus he ſaith; *Truely God hath marvelouſly preſerved you, as he hath alſo pleaſed to call me to this work. For I had rather thought that the laſt day of judgement ſhould come, then that I ſhould come into* Norimberg, *and (as you ſaid your ſelves) leave ſo farre behinde me mine own dominions, good ſubjects, and what elſe there is loving and deare unto me; and to bring along with me ſo many brave worthies, to expoſe their lives (as I do mine own) for the reſtitution, ſafetie, and preſervation of the common Evangelicall cauſe, and liberty of* Germanie. And again, to thoſe of his Court before *Ingolſtadt*, amongſt other things, he addeth this; *I know* (ſaith he) *that the good ſucceſſe which it hath pleaſed God to afford me in my enterpriſes, hath made ſome to be envious, who labour to perſwade the ſimple that I endeavour nothing more then mine own gain, and the robbing and ſpoiling of others. But I call to witneſſe in this caſe the Princes who were thus ſpoiled, which I have again eſtabliſhed in their own right and eſtates; as alſo the creditours of whom I have borrowed ſuch extraordinary ſummes of money, both at* Frankford *and elſewhere, and the dangers which I do daily expoſe my ſelf unto: I call all theſe to witneſſe, whether I have left mine own kingdome, and the dearest I have in the world, to any other end, and with other intention, but onely to deſtroy the tyranny of the houſe of* Auſtria, *and to obtain a profound and ſetled peace unto all.*

Theſe words of his ſhew nothing leſſe then that he was extraordinarily ſet on work to undergo ſuch fortunes as the eyes of all the world have bravely ſeen him ſtruggle with: and God knows who ſhall end that which his coming into *Germanie* hath begun. It was his own ſaying, that if he himſelf ſhould not ſurvive ſo long

as to bring to paſſe ſo great a work, that then in his ſtead ſome other might ſucceed and go on, untill a full point and period were put unto the warre. For upon the occaſion of his deliverance from a cannon ſhot, he utters theſe words; ſaying, that he was not onely mortall, but ſubject alſo unto the very ſame accidents that the pooreſt and meaneſt ſouldier is ſubject unto. *It is a generall law,* ([l] ſaith he) *from which my crown, my birth, my victories, are not able to reſcue and exempt me. There remaineth nothing elſe therefore, but that I muſt reſigne my ſelf to the providence of the Almighty, who (if it pleaſe him to call me out of this world) will nevertheleſſe not abandon and leave a cauſe ſo juſt as that which I have undertaken; but will doubtleſſe raiſe up ſome other, more wiſe, more couragious and valiant then my ſelf, who ſhall put a period to this warre.*

l In a ſpeech to his court at Ingolſtadt.

And again, it was but three dayes before his death, that at *Naumbourg* he uttered theſe words; *Our affairs* ([m] ſaith he) *anſwer our deſires; but I doubt God will puniſh me for the folly of the people, who attribute too much unto me, and eſteem me as it were their God: and therefore he will make them ſhortly know and ſee I am but a man. He be my witneſſe, it is a thing diſtaſtfull unto me: And what ever befall me, I ſhall receive it as proceeding from his divine will. Onely in this I reſt fully ſatisfied, that he will not leave this great enterpriſe of mine imperfect.*

m Taken out of the relation of his laſt battel, pag. 20. tranſlated out of French into Engliſh.

A memento for after-times.

Great King of Hearts, in arms tranſcending fame!
Eternall praiſe ſhall blazon forth thy name.
Soul of thy friends thou wert;
But terrour, ſcourge of foes.
Canſt thou then die, though death
Thine eyes in ſpight may cloſe?
No no: For times unborn ſhall yet repeat
What deeds were done by thee a King ſo great.
And this doth alſo raiſe thy juſt renown,
That in thy fall thine enemies fell down.

Thine was that day: thy men undaunted fought
Untill their foes the field were driven out:
For as it were from forth their Kings laſt bloud
The palm and bay ſprung up, and conqu'ring ſtood.
Great deeds thou diddeſt ſoon: hot Mars his ſphere
In Germanie thee mov'd a double yeare:
From whence at laſt above the ſpheres he caught thee,
And to a place of peace eternall brought thee:
Where thou ſhalt reſt, how e're the reſt proceed
With thoſe fierce warres which heav'n hath thus decreed

But let me now return again to this New ſtarre, and ſhew you that in the dayes of *Hipparchus*,*who lived towards the end of the Grecian Monarchie, there appeared one much like it: and ſo [m] *Plinie* telleth us. But ſince that time we reade of no other untill this in the yeare 1572, excepting that which appeared at our Saviours birth, which indeed was no ſuch ſtarre: for it had three properties [n] never ſeen in any elſe; moving firſt from the North to the South; ſecondly, it was ſeated in the loweſt Region of the aire; thirdly, it was nothing hindred by the light of the ſunne, &c. Yet in later times, following the ſaid yeare 1572, ſome ſmaller ones have been: as in the yeare 1596; this was ſeated in the *Whale*. And in the yeare 1600, or thereabouts, another was ſeen in the conſtellation of *Cygnus*. *Kepler* makes mention of one in the yeare 1602 in the conſtellation of *Piſces*; ſoon after which, upon the death of Q. *Eliſabeth*, and coming in of K. *James*, was that great plague at London. Some ſay that *Andromeda's* girdle and the conſtellation of *Antoninous* afforded each of them one, in the yeare 1612. But the yeare 1604 muſt not be forgotten; for in the [o] 16 degree and 40 minute of Sagittarius toward the Southweſt a remarkable one appeared, having 2 degrees and 15 minutes of North latitude, and was ſeated in the conſtellation of *Ophiucus*: this at the firſt ſhined as bright as Venus;

* He flouriſhed 135 yeares before Chriſts birth. *Helvic. Chronol.*

m *Lib.* 2.

n See more in Aquinas ſummes.

o Some ſay the 17 degree. *Calviſ. chron.*

Venus; and in the very next yeare that damnable powder plot of the Papiſts was diſcovered.

But now, though theſe and more were reckoned up, yet that in *Caſſiopea* would be the chief, the elder brother, and captain of them all; becauſe both in height, bigneſſe, and luſtre, they were leſſe remarkable.

Tycho, upon the ſight of this New ſtarre, laboureth to prove that the heavens, and not the earth, afford matter to ſuch as theſe are; thinking that it differeth not from the matter of other ſtarres, unleſſe in this, viz. that it is not exalted to ſuch a perfection and ſolid compoſition of the parts as in the firſt continuing and created ſtarres; the main and principall reaſon being taken from the magnitude of them, together with their extraordinary height. As for example; * *Tycho* affirmeth concerning that New ſtarre in *Caſſiopea* (being as it were the elder brother of all the other after it) that it was 300 times * bigger then the earth. Which being ſo, it is with ſmall probabilitie affirmed that it ſhould have matter from that which is ſo much leſſe then it; and indeed a thing impoſſible. The heavens are large enough to afford matter, although the earth be not: and no part of the heaven can be imagined to be more fit for ſuch a purpoſe then the *via lactea*, or *milkie way*; for that place alwayes ſhews it ſelf, even to the eye, ſo as if there were much indigeſted matter in it, reſerved onely to work ſuch wonders.

A conſideration of this New ſtarres matter.

* *Lib. de nova ſtella.*

* Yet the ſame matter, had it been cruſhed together, or as ſolidly compoſed as the earth, would have been as nothing in reſpect of the earth.

Yet nevertheleſſe I ſuppoſe it may be alſo granted, that an earthly Exhalation may have recourſe ſometimes unto the battlements of heaven, and in ſome ſort and in part concurre towards the compoſition of theſe New ſtarres (as they are called) and of ſuch Comets as have been above the Moon. What ſhould we think of that laſt, in the yeare 1618? it * was (as I have already ſaid) amongſt the wandring ſtarres themſelves; and yet it was

* *Longomont. de novis cœli Phænom.*

no other then ſuch a ſtarre as we call a Comet or a blazing ſtarre. Now then, if this had matter from the earth, and ſpent it amongſt the Planets, rather then below the Moon; why might not thoſe which we call New ſtarres obtain the like freedome to have the like matter aſcend a little higher? What ſhould hinder this conjecture I do not eaſily ſee: for queſtionleſſe the ſame power remains ſtill in the ſtarres to exhale the matter as well after it comes into the higheſt Region of the aire, as before it came there; neither need we then imagine an abatement of their exhaling vertue.

Object. 1. But perhaps it may be thought that the nature of the place above the Moon doth ſufficiently denie the aſcent of any terrene Exhalation ſo high; there being too great a difference between the one and the other; between the matter aſcending, and the matter of that place whither it aſcendeth.

Anſw. To which I may partly anſwer as before, in the 4. Chapter and 3. Section, that ſeeing the out-ſpread Firmament in the creation was taken from that maſſe of matter which lay here below, and ſeparated from it rather then created of any newer matter, that therefore (I ſay) there cannot be ſo great a difference as to bring in ſuch an Antipathie as will not at all ſuffer any terrene Exhalation to ſcale thoſe *flammantia mœnia mundi*, or battlements of heaven; but rather, that without reluctancie, or any great ſtriving, the one may admit of the other, and entertain it as a gueſt neare of kin unto it ſelf, or unto the nature of that place where the continuing ſtarres have ever had their reſidence.

From the earth to the higheſt Firmament is nothing but aire.

For, if I urge it further, it may well be proved even by opticall demonſtration, that the great vaſt ſpace from the earth, as high as the fixed ſtarres themſelves, is not of a diverſe nature from the Aire; for if it were, then there would be a multitude of Mediums between the ſight and

the thing viſible: but there is no multitude of Mediums: For where there is a multitude of Mediums, there the beams which come to the ſight from the thing viſible would beget a multiplicitie of refraction in the ſaid raies or beams; but it is manifeſt that there is onely one refraction found in the beams of the ſtarres, and that but onely when they are neare to the edge of the Horizon, at which time the aſcending vapours are between our ſight and them: And therefore there is but one kinde of Medium by which the ſtarres offer themſelves to our ſight: And being but one Medium, there cannot be ſuch diverſitie of natures between the heavens and things compounded of the elements. Whereupon it may be concluded, that an Exhalation may aſcend into the territories of the ſtarry heaven, and ſo by conſequent have a mutuall concurrence with ſuch matter as the heavens do naturally afford towards the generating of ſupralunary Comets, or new admired ſtarres.

Indeed I muſt confeſſe that were I of *Pythagoras* his opinion, I then would cry out with *Auditus* in the [p] Comedie—— *Heark, heark, liſt, liſt now, &c.* What, are you deaf? do you not perceive the wondrous ſound and the celeſtiall muſick the heavenly orbs do make with their continuall motion? Or I would imagine firm ſpheres or ſolid orbs, and ſo ſet an undoubted ſtoppage, and hinder the paſſage of any Meteor above the Moon: But ſeeing that tenent is made the fit ſubject of laughter, I therefore paſſe it over.

[p] Called *Lingua.*

Object. 2. But may not the Element of Fire ſtand in the way, and ſo conſume ſuch matter as aſcendeth, before it come beyond the Moon?

Anſw. To which it is anſwered, that the chiefeſt cauſe why men have been perſwaded to think that Fire is generated immediately under [q] the ſpheres, and that within the concave of the Moons orb, the ſaid Fire, as it is

[q] *In concavo Lunæ generatur ignis.*

there generated, hath there its place of reſidence, is for no other reaſon but becauſe of an imagined attrition of the ſpheres and orbs: Which ſeeing they are taken away, and that all is filled with Aire, the Elementarie fire is not hindred from aſcending, but may have a more loftie ſtation. For queſtionleſſe, this kinde of fire, as it is not viſible to the ſight, ſo neither may it be thought any other thing then the more ſubtill, light, and hot part of the Aire; in which regard it muſt needs be both in and of that part, which is neareſt to the higheſt heavens: For both the motion of the heavens is there moſt ſwift; and alſo, there is the greateſt neighbourhood to that infinite number of ſtarres fixed in the heavens.

What place the Element of Fire poſſeſſeth.

An earthly Exhalation may therefore climbe above the Moon, and yet not runne through a fiery purgatory, or be conſumed by the way.

Mr. *Lydiat* our countreyman, his opinion is, that if we conſider of this Element, not as it is abſolutely pure, then the greateſt part of it is in the ſtarres (of which ſee more in the fourth dayes work) and ſome alſo is under ground, as being there a great cauſe of generating metals; occaſioning the burning and breaking out of ſundry ſulfurous hills, and the like.

But of this enough. And in the conſideration of it I have made way (you ſee) for the admittance of terrene Exhalations to joyn their forces towards the effecting of ſupralunarie Comets, or new and ſtrange admired ſtarres. This, I ſay, I have proved as a thing both poſſible, and not unlike. But that they do alwayes therefore thus concurre, I am not certain; neither will I ſtand curiouſly to decide it.

Let therefore learned *Tycho* his tenent go for currant concerning *Caſſiopea's* ſtarre, that the heavens onely were the materiall parents of it, and eſpecially the *Galaxia*, or white milkie way; unto the edge of which place

(whileſt

(whileſt it appeared) it was ſituated, and continued viſible in the ſame, for the ſpace of 19 moneths, or thereabouts.

And thus I conclude, adding herewithall concerning other Comets whoſe ſtation hath been ſupralunarie, and time of continuance any thing long, that if in them there could be any right to challenge a portion out of the ſame ſtorehouſe, then queſtionleſſe they were tyed to reſt beholding both to the heavens, and alſo to the earth, for the matter of their compoſure. But for ordinary Comets the caſe muſt needs be otherwiſe, ſeeing their place and ſmall continuing time confirm it.

Theſe things for mine own part I think more probable then if I ſhould affirm that the Planets afforded certain Exhalations, which by force of the Sunne are expired and exhaled from them, and being exhaled are made the matter of all kinde of Comets above the Moon; yea and New ſtarres alſo (as ſome affirm) conſiſt of no other cauſes: wherein they diſſent from *Tycho*, thinking (contrary to him) that the *Galaxia* affords no matter toward the compoſure of theſe appearances. For (as[r] *Fromondus*, a late writer, affirmeth) *Simon Marius* beheld a New ſtarre in the yeare 1612, in *Andromeda's* girdle; and one *Juſtus Prygius* beheld another in the conſtellation of *Antoninous*; *Kepler*, in the yeare 1602, ſaw one in the conſtellation of *Piſces*; and *David Fabricius*, in the yeare 1596, ſaw another in the *Whale*; all of them farre enough diſtant from the *Galaxia* or milkie way.

[r] *Lib.* 3. *Met. cap.* 2. *Art.* 7.

But ſuppoſe all this; muſt the continuing ſtarres therefore needs be forced to waſte their own bodies, and ſpend themſelves in teeming ſuch ample portions of matter as are required for glittering Comets, or New ſtrange ſhining ſtarres? Surely if they ſhould ſuffer their bodies to be thus exhaled, they could not chooſe but fall into a deep conſumption, and be viſibly diſproportioned

in

in their ſhapes and figures, farre otherwiſe then we ſee them: For it is a long time ſince the world began, and no few Comets have had their ſeats above the Moon, where they all cry out againſt an opinion ſo improbable, ſhewing that the changes would be ſuch as would be apparant and viſible enough to every vulgar eye.

Beſides, it cannot but be granted, that for ordinary Meteors every ſtarre and Planet hath an exhaling vertue as well as the Sunne: why therefore ſhould they now deſiſt and leave it all to him, who, if he may have this libertie, will at the laſt ſuck them all to nothing? Theſe men may well imagine (as they do) mountains in the Moon, with woods and groves, ſeas and rivers; and make every Planet another world: but yet 'twere good they knew that God made all but one, although the parts be two; and that Adam being caſt out of Paradiſe was ſent to till the ground and labour the earth, which he ſought, not with the man in the Moon; for he knew that that was not to bud forth with fruit, bear trees, and the like, becauſe it had another office. For *Let the earth* (ſaith the Almightie) *bring forth graſſe, herb, fruit, trees,* &c. *but let there be lights in the Firmament, the greater light to rule the day, and the leſſer light to rule the night.*

Alſo, if the Sunne ſhould work thus among the ſtarres, and that there ſhould be vapours exhaled from their bodies, how comes it to paſſe that we perceive no clouds in the Ethereall vault, and that we cannot ſee them glide between ſtarre and ſtarre, flying upon the wings of ſuch windes as muſt neceſſarily upon the admittance of this tenent be generated there? Perhaps they will anſwer that theſe things may be, and we not ſee them, by reaſon of the great diſtance between us and them. Well, be it ſo; yet know, that although we could not ſee them, we ſhould ſometimes feel them, and perceive our mother earth to be watered with ſhowers of rain, when we

ſee nothing but a cleare skie over us. But it may be they again will anſwer, that the ſtarres do not frequently afford ſuch Vapours and Exhalations, but ſometimes onely: and then, if they be not copious enough to make ſuch a cloud as may ſhine like a Comet or blazing ſtarre, they are rather diſperſed into nothing, then turned into rain: for their matter is too hot and drie to make a rainie cloud. In good time. The ſtarres do not frequently afford ſuch Exhalations; and why ſo I pray? ſurely the ſunne is never ſo farre diſtant from ſome one Planet or other, but that he would make this his operation appeare, if he had at all any ſuch working, or power of exhaling matter from them; and, if not a waterie, yet a drie cloud might be viſible. The ſtarres ſurely are of ſuch a nature that they be rather fed and nouriſhed by vapours, then compelled to ſuffer an unwilling waſting cauſed by an exhaling vertue, which is improperly given onely to the Sunne, becauſe onely to him: and from whence theſe Vapours come, which upon all likelihood do continually nouriſh the ſtarres, ſhall be ſhewed in the fourth dayes work.

Neither do ſome exempt the Sunne from theſe evaporations, but affirm that day and night he alſo expireth vapours from him: which others again denie, becauſe they imagine that this publick lamp of the world ought to be more immortall, leſt being extinct, he ſhould be quite without light, and afford the world nothing but black and diſmall darkneſſe.

That therefore which before I affirmed, joyning in part with *Tycho*, who fetcheth matter from the *Galaxia*, ſeems to me farre more probable concerning the generation of theſe appearances. For firſt, the *Galaxia* doth ſenſibly appeare as if it were an ample ſtorehouſe, and had large portions of matter, reſerved onely for ſuch purpoſes; which, when there is a working in nature apt

and convenient to produce it, is liberally afforded, and ſent thither where the moſt power is to attract it. And ſecondly, that an earthie Exhalation may ſometimes be admitted to joyn with the aboveſaid matter, this ſeems to me a reaſon, becauſe, like other low and ordinary Meteors, theſe alſo ſhew themſelves or firſt begin to ſhine in the Autumnall ſeaſon, and not in the Spring, Summer, or Winter Quarter.

Article 3. *Of Thunder and Lightnings.*

NOw it followeth that I ſpeak of ſuch fierie mixt Meteors as are of leſſe continuance then Comets or blazing ſtarres: and by their generall names they are called Thunder, and Lightnings.

Concerning the firſt, which is Thunder, it is not properly any kinde of Meteor, but rather an adjunct or depending effect.

What thunder is.

For Thunder is nothing elſe but a ſound heard out of a thick or cloſe compacted cloud: which ſound is * procured by reaſon of hot and drie Exhalations ſhut within the cloud, which, ſeeking to get out, with great violence do knock and rend the cloud; from whence proceeds that rumbling noiſe which we call thunder. For when an Exhalation which is more hot then ordinary, meets with cold and moiſt vapours in the middle Region of the aire, and are incloſed all together in an hollow cloud, it cannot but be that they fall at variance; and by this ſtrife being driven together, the Exhalation is made ſtronger: and either by the motion, or by an *Antiperiſtaſis*, it is ſet on fire; which violently breaking the clouds whileſt it ſeeks for libertie, gives an horrid ſound. A ſimilitude may be taken from a cheſt-nut, apple, or egge breaking in the fire; or from the cracking of moiſt wood, or any ſuch like thing: for this is apparent, that when any incloſed hot winde is holden and withholden ſo as it

* *Joannes Bodinus putat à geniis aeris & dæmonibus ſemper fulmina jaci, & tumultum illum cœli cieri.*

it can have no vent, it will then ſeek it ſelf a way by breaking the skin, ſhell, or caſe; and in the breaking, ſeeing it is with violence, it muſt of neceſſitie make a noiſe. And thus it is in thunder.

But obſerve that in thunder the noiſe made is not alwayes of a like ſound: for in reſpect of the hollowneſſe, thickneſſe, or thinneſſe of the cloud, and ſmall or great force of the Exhalation, the ſound is altered.

A great crack is cauſed when the cloud is very hollow, his ſides thick, and the Exhalation very drie and copious: which if it break the cloud all at once, then it maketh a ſhort and terrible crack, much like the ſound of a gunne. If it rend the cloud all along, breaking out by leiſure, then it makes a noiſe like to the rending of broad cloth, or the ratling of ſtones out of a cart. Great cracks.

A ſmall crack is cauſed when either the cloud or Exhalation is but weak; or the cloud ſtrong, and the Exhalation of ſome little quantitie. And in ſmall thunders it ſometimes falleth out that when the ſides of the cloud are ſtronger then the force of the Exhalation is able to break, that then it runneth up and down within, and ſticking againſt the cold and moiſt ſides, maketh a noiſe much like to the quenching of an hot iron in cold water, or of a ſquib made of wet powder: in which regard [r] *Plinie* ſeemeth to averre that thunder is but the quenching of fire in a wet cloud. Alſo if the Exhalation be meanly ſtrong, and the cloud of unequall thickneſſe, then it breaketh out at the thinneſt places, and makes a kinde of buzzing noiſe like to a winde blowing out of narrow holes. Small cracks.

r *Lib.* 2. *cap.* 43.

And ſo ſometimes it happeneth that there may be a thunder-crack and yet no lightning; and ſometimes lightning without thunder. Sometimes thunder and no lightning; ſometimes lightning and no thunder.

The firſt is cauſed thus; either when the cloud is ſo thin that it cannot keep in the Exhalation till it be kind-

 led,

led, but ſuffereth it to go preſently forth, making a noiſe like to the winde out of a pair of Smiths bellows: or elſe when the cloud is ſo thick, and the Exhalation ſo ſlender and thin, that although it ſtirre up and down within the cloud, yet it fireth not, but waſtes it ſelf within that priſon, as not being able to get out. And thus may thunder be without lightning.

How there may be lightning without thunder.

The ſecond is cauſed, when either the Exhalation and Vapour are both thin, and the cloud alſo as thin: or elſe thus, namely when many thin, light, and hot Exhalations by immoderate heat are drawn up from the earth, and by the abſence of the ſunne are deſtitute of that force by which they ſhould be drawn up higher; yet ſomewhat aſcending by their own nature, (in that they be light and hot) they meet with the cold, either of the night in the loweſt Region, or elſe of the aire in the middle Region; and ſo by an *Antiperiſtaſis* or reſiſtance of contraries, they are beaten back, and with the force of their motion ſet on fire, as in ſummer nights and evenings we often ſee after an hot parching day. Now this kinde of lightning ſome call *Fulgetrum*.

The kindes of lightning.

Another ſort they call *Coruſcatio*; which indeed is nothing elſe but the ſhining of the lightning; the ſhining or glittering of it rather then the lightning it ſelf: for in this regard we can perceive a flaſhing when there be no clouds above our Horizon; or if there be clouds, we ſee the flaſhing when our backs are turned from them; or elſe we often perceive even through a thick cloud that it lightened, when the lightning came not ſo low, but onely iſſued out of a thinner cloud which was above that thicker one, and ſhined through it.

A third kinde is called *Fulgur*: and this is accompanied with thunder, cauſed by the ſtrife and reluctation which the Exhalation maketh in the cloud, ſhewing it ſelf in the breaking of the ſaid cloud: and although the crack

Why we ſee the lightning before we heare the thunder.

be

be heard long after we have ſeen the fire, yet they come together; the ſeeming difference being, becauſe the quickneſſe of our ſight preventeth our hearing; which is ſo much the ſooner done, either when the thunder is farre off and not neare unto us, or when the winde is contrary; which is alſo ſeen in the cleaving of wood, or any the like knocking: for let us be but in ſome ſort diſtant from the partie making the noiſe or ſtriking the blow, and we ſhall ſee the ax heaved up again before we heare the ſound.

The worſt kinde of lightning.

The next is *Fulmen*; and between this and the other is a great difference: For *Fulmen* is an Exhalation which in reſpect of its quantitie is ſo copious, and in reſpect of its qualitie is ſo hot and drie, and mixed with ſo many other vapours of a contrary nature, that when it breaketh the cloud wherein it is incloſed, it comes with ſuch a violence, and continues burning ſo long, that it falleth even to the very ground, making a more fearfull *fragor* or crack then ordinary: And oftentimes a great ſtone is blown out of the cloud with it; whoſe cauſe is alſo naturall. For when the Exhalation is drawn up with more then an ordinarie violence; or is ſo drawn up, or from ſuch a place as it may carrie much earthie matter with it, then is the ſtone procured. The matter cauſing it at the firſt is thin, and like unto the fineſt ſand that can be imagined; yet neverthleſſe through the moiſture which it getteth in the Aire, and by the meeting with wet vapours in the aſcent, it clottereth together, and being alſo it ſelf of a kinde of clammie nature, it disjoyneth not, but ſticketh faſt: and then by the exceſſive heat which it findeth in the generall matter of the Exhalation when it is fired, it is throughly hardened, even as a brick which is burned in the fire: and being [a] thus hardened and burnt, it breaketh forth with the Exhalation, and they both come tumbling down together. For the force of the Exhalation

The making of the thunder-ſtone.

[a] Or thus; *Generatur ex exhalatione terreſtri viſcoſa, & humore nubis, quos ardor fulminis celerrimâ tranſmutatione in ipſo etiam caſu (nam grave ibi ſuſpendi aut hærere non poteſt) permiſcet, & in laterem coquit.* Fromond. *lib.* 2. *Meteorolog. Artic.* 7. *cap.* 3.

halation ſhoots it out, and look whatſoever is in the way, it overthroweth, burneth and daſheth in pieces. Howbeit, when it ſtriketh the earth, it is reported to go never above five foot deep.

All this is pertinent to that which is called *Fulmen.* But for that other, which is *Fulgur*, the caſe is farre otherwiſe. For in regard of the little plentie of the matter it never falleth to the ground, but is waſted and conſumed by the way.

Three kindes of *Fulmen.*

Moreover, Philoſophers make three kindes of *Fulmen*; viz. *Terebrans*, *Diſcutiens*, and *Urens*: or (as ſome call them) *Scindentia, Infuſcantia*, and *Urentia.*

The firſt kinde is drie of qualitie.

1. The firſt is ſaid not to burn, but rather to pierce, cleave, and extirpate ſuch things as are obvious to it. For ſeeing it is more ſubtill and pure then groſſe, as alſo wondrous drie, and carrieth with it great plentie of ſpirits, winde, or breathings, it muſt needs produce ſtrange effects, and paſſe through the pores of any thing be they never ſo ſmall; ſtriking through with ſuch wonderfull ſwiftneſſe, as that it cannot poſſibly hurt, but where it is reſiſted and hindered by the cloſe compoſure of that matter againſt which it ſtriketh. And hereupon it comes to paſſe that money is ſometimes melted in the purſe, & the purſe not hurt at all; the bones broke, and the skin ſound: yea and ſometimes the whole man burnt to aſhes when his clothes are not conſumed, with many the like ſtrange accidents. And why it ſhould cleave a wine veſſell and the wine be ſo dull as not to runne out untill ſome 2 or 3 dayes after, this may be a reaſon; viz. in regard of the ſwift alteration and change, whereby alſo all the clammineſſe of the wine is drawn to the outwardmoſt part, which keepeth in the wine as in a skin, not ſuffering it ſuddenly to diſperſe it ſelf.

The ſecond kinde is ſomething moiſt.

2. The ſecond kinde burneth not to aſhes, but blaſteth or ſcorcheth, leaving the tincture of fire, and as it were

of ſmoke behinde it; for the things which it ſtriketh do uſe to look black, or of a ſootie colour, like unto a chimneys ſtock. And this is cauſed in regard that this kinde of lightning is farre more full of moiſture then the other; and yet in a manner as ſubtill, ſwift and pure: otherwiſe it would not blaſt but burn.

3. The third kinde is *Fulmen Vrens*; and this is *magis igneum quàm flammeum*, more fiery then flamie; being of a groſſe and earthy ſubſtance, having much ſlimie matter in it: which makes it therefore ſet ſuch things on fire as are combuſtible, whenſoever it meeteth with them.

The third kinde is moſt groſſe of the three.

And yet there are ſome things which (as * it is ſaid) the lightning hurteth not. As for example, The [f] Eagle, Joves bird, is free. The laurell is not hurt: neither can the earth be wounded any more then 5 foot deep. Such places alſo as are covered with the skins of Seals, or Seacalves, are ſecure: wherefore of old time the tents of the Emperours were covered with them for their better ſafetie. *Suetonius* telleth us a ſtorie of the Emperour *Caligula* how he was ſcared with Thunder; who, although he bragged and boaſted of himſelf that he was a god, and threatned warre with *Jupiter* for a ſhower of rain that fell againſt his minde, was neverthleſſe by and by ſo terrified with thunder and lightning, that he thereupon runnes and hides his head under a bed.

* *Plin. lib.* 2. *cap.* 55.

[f] The Poets therefore write that ſhe carries Jupiters armour, which is lightning.

Moreover it is ſaid, that if lightning kill one in his ſleep, it openeth his eyes: if it kill one whileſt he is awake, it ſhutteth them. The reaſon being becauſe it waketh him that ſleepeth, and killeth him before he can ſhut his eyes again: and him that waketh it ſo amazeth, that winking he dieth before he can open thoſe eyes of his which the ſudden flaſh of the lightning cauſed him to cloſe.

And know that it is not good to ſtand gazing upon the lightning at any time: for when it doth no other hurt, if it

Not wholeſome to gaze on the lightning.

it be any thing neare us, it may dry up, or ſo waſte the cryſtalline humour of the eyes that it periſh the ſight: or it may ſwell the face, making it to break out with ſcabbes or leproſie, cauſed by a kinde of poyſon in the Exhalation which the pores of the face and eyes admit and receive. For this is certain that the matter of lightning, ſeeing it cometh from ſulfurous and other poyſonous metallick ſubſtances, is much infected, and therefore hurteth where it entreth.

Sect. 2. Parag. 5.

Of ſuch Meteors as are fiery onely in appearance.

Artic. 1.

The Galaxia *is no Meteor.*

AND thus have I done with all thoſe kinde of Meteors which are fiery in very deed, whether pure or mixt.

Now it followeth that I ſpeak of ſuch as are fiery onely in appearance; not being ſuch as they ſeem to be, but rather ſeeming more then they are.

Some account eight of them, and make the *Galaxia* or milkie way to be one. But that laſt may rather be left out: For although *Ariſtotle* would have the *Galaxia* to be a Meteor, yet his opinion is worthily miſliked of moſt men, and that not without good reaſon.

For if it were a Meteor, and of the nature of the Elements, as Exhalations are, it would be at the length conſumed like to other Meteors: but this circle never corrupteth nor decreaſeth; and therefore it is no ſublunarie concretion attracted and formed out of the ſtarres which are above it, and placed by their power in the higheſt part of the aire.

Moreover,

Moreover, if this his tenent were true, why hath it continued (the *Galaxia* I mean) in the ſame form, place, and magnitude alwayes from the beginning of the world untill now? And beſides, other ſtarres might alſo attain to the like luminous concretion as well as thoſe which he imagineth to be over it.

And moreover, this milkie way of *Ariſtotle* would admit of a Parallax, were it ſo as he perſwadeth; and according to the opticall conſideration (ſaith noble *Tycho*) by the ſhining of the fixed ſtarres through it, it would beget a ſtrange refraction, differing farre from that which is occaſioned by the vapours that are ſeen about the Horizon. For they ſeldome riſe to the twentieth degree of altitude; whereas this, proceeding from the *Via lactea*, would reach to the greateſt height.

Wherefore we may ſay that it is rather of the nature of the heaven, or a certain heavenly ſubſtance, but ſomewhat thicker then the other parts of heaven: or (if you will) much like to the matter of the ſtarres, or to the ſubſtance of the moon; but diffuſed and ſpread abroad, and not conglobated into one bodie as the ſtarres are. For although all be filled with aire from the earth to the fixed ſtarres, yet there the matter may begin to be more thick, firm, and ſolid; and ſo the waters above the heavens are the better upheld. What the *Galaxia* is.

For concluſion therefore, not reckoning this amongſt any of theſe Meteors fierie onely in appearance, I may account them in number ſeven.

As thus: 1. *The colours of clouds.*
2. *Many Sunnes.*
3. *Many Moons.*
4. *Beams of light.*
5. *Crowns or circles about the Sunne or Moon.*
6. *The Rain-bow.*
7. *Chaps or openings in the skie.*

Concerning all which in generall,although they ſeem to burn, yet they do not, but are cauſed by refraction and reflexion of light, either from the Sunne or Moon, or brighteſt Planets.

Artic. 2.
Of colours in the clouds.

AND particularly for the appearance of colour in the clouds, it ariſeth not from the mixture of the foure qualities, as it doth in bodies perfectly mixt, as herbs, ſtones, &c. but onely from the falling of light upon ſhadow or darkneſſe; the light being in ſtead of white, and the ſhadow or darkneſſe in ſtead of black. Not that they are alwayes perfectly white and black; for they differ according to the qualitie and compoſure of the cloud: wherefore ſome be very white, and that is when the vapour whereof the cloud conſiſteth is very ſubtil and thin; ſome yellowiſh, when the vapour is thicker; ſome ruddie and duskiſh, when it is meanly thick; ſome black, when it is very thick; and ſome greeniſh, when it is more waterie then ordinary, being beſt diſcerned when it is farre from the Zenith, and obvious by an oblique aſpect.

Why red clouds are ſeen onely in the morning and evening.

The red and ruddie colours are ſeen onely in the morning and evening, when the light of the ſunne is not in his full force; for at other times his light is too vehement, cleare, ſtrong and piercing. And by a diligent obſervation of theſe colours, I think a man may as eaſily judge of fair or foul weather and the like, as a phyſician may of the temperature of the bodie by inſpection of the urine. But of colours you may ſee more * afterwards.

* *Viz. Parag. 6. Artic. 1.*

Artic. 3.
Of many Sunnes and Moons.

AND now concerning many Sunnes; they are called *Parahelii*, from παρὰ and ἥλιος; which is as if one ſhould

ſhould ſay, *apud ſolem*: becauſe they are as it were with the ſunne in place, as alſo not abſent from him in ſplendour and faſhion.

Their generation is after this manner; viz. when a ſmooth waterie cloud which is of equall thickneſſe, quiet and ſtill, is placed on the ſide of the ſunne: not under the ſunne, for then there would be a circle; nor oppoſite to the ſunne, for then there would be the appearance of a Rain-bow: but on the ſide; which muſt not be too farre off, nor yet too neare: for if it be too farre off, then reaſon telleth us that the beams will be too weak to reflect in a convenient manner: or if it be too neare, then the ſunne will diſperſe it without any image at all.

Now if ſuch a cloud as this we ſpeak of ſhall happen to be on both ſides of the ſunne, then the appearance will be as if there were three ſunnes; whereas there is indeed but one: the other two being the images of the true Sunne, ſeen onely by reflection or refraction upon the cloud on either ſide. Or be there more pieces of ſuch a cloud then one, ſet at a convenient diſtance; then there may be many ſunnes: even as in a broken looking-glaſſe, every part will ſhew the ſhadow of that face which is obvious to it.

Moreover, theſe many ſunnes may be ſaid to have a double ſignification; the one naturall, the other ſupernaturall.

What is ſignified by many ſunnes.

According to their naturall ſignification, they betoken rain and moiſt weather; becauſe they cannot appeare but in a moiſt diſpoſition of the aire.

And as for their ſupernaturall ſignification, experience hath witneſſed, that they have appeared as the portenders of change in ſtates and kingdomes; or as the foretokens of Gods wrath upon ſinners. For this is a rule, that ſuch things as are ſtrange may be derived both from naturall cauſes, and alſo include God the chief and beſt

A rule and an obſervation concerning ſtrange ſights.

cauſe of all things; by whoſe admired providence each thing is ordered,& by whoſe unſpeakable wiſdome each particular change hath been decreed: yea even in the courſe of nature (before ever nature was) he both foreſaw and appointed how things ſhould happen; although in reſpect of our weakneſſe and want of skill, the ſearching of them out be too abſtruſe and hard. For as I verily beleeve, that not ſo much as one poore ſparrow falleth to the ground without Gods providence; ſo I do alſo acknowledge, that by his providence likewiſe he bringeth to paſſe theſe and the like things, for ſuch ends, as he in his ſecret counſell hath determined; uſing his creatures (whoſe courſes in each particular he both ſet and foreſaw) as inſtruments and means to effect them.

But I proceed. And as for the ſupernaturall ſignification of theſe ſunnes, experience (I ſay) hath witneſſed that ſome ſtrange thing or other uſually followeth after them. As not long before the contention of *Galba*, *Otho*, and *Vitellius*, for the Empire of Rome, there appeared three ſunnes, as it were pointing out the ſtrife which followed ſoon after between them three [a] for the imperiall diadem.

a Fulks Meteors.

b Stows Abridg. of chron.

Alſo in the yeare [b] 1233, upon the 7 day of April, foure ſunnes were ſeen beſides the naturall ſunne: in which yeare (as *Lanquets* chronicle teſtifieth) there was great debate kindled, and much variance ſtirred up between *Henry* the third, K. of *England*, and the Lords of his kingdome: and in the very [c] next yeare, *England* was waſted with fire and ſword from *Wales* to *Salisburie*; which ſaid town was alſo burned: and at the ſame time was a great drought and peſtilence.

c *Stow, ibid.*

d *Idem.*

Alſo in the yeare [d] 1460, three ſunnes again ſhewed forth their orient faces, which was but the day before the three Earls, viz. *Edward* Earl of *March*, with the Earl of *Pembroke*, and Earl of *Wilt-ſhire*, fought their

great battels in *Wales* at *Mortimers* croſſe (as *Stow* in his Abridgement affirmeth;) where the Earl of *March* put the other two to flight, and ſlew many of their people. And again, in the yeare 1526, towards the ſlaughter of *Lewis* the ſecond, King of *Hungary*, [e] three ſunnes marched out, [f] betokening the three Princes which ſtrove for the kingdome after him: which three were theſe, viz. *Ferdinand*, who was afterwards Emperour, and *John Sepuſio Vaivode* governour of *Tranſilvania*; as alſo *Solyman* the Magnificent, or Great Turk, being one of the hardieſt captains in all his time.

e Fulks Meteors.

f In the yeare 1619 were 3 alſo ſeen at *Lovan* in the moneth of May, at the riſing of the Sunne. *Fromond. Met. lib.* 6.

And now after the conſideration of many Sunnes, it followeth that I ſpeak of many Moons, of which it is no hard matter to know the naturall cauſe, ſeeing their generation is, as before hath been ſhewed concerning many Sunnes.

Du Bart.

For if a watry Cloud ſhall ſide-long ſit,
And not beneath or juſtly oppoſite
To Sunne or Moon; then either of them makes,
With ſtrong Aſpect, double or treble ſhapes
Upon the ſame. The vulgar then's affrighted
To ſee at once three ſparkling Chariots lighted;
And in the Welkin, on nights gloomie throne,
To ſee at once more ſhining Moons then one.

Artic. 4.
Of Beams or Streams of light.

NExt unto theſe I mentioned Beams or Streams of light, and they are generated after this manner; namely when the light of the Sunne falleth into a watery cloud of unequall thickneſſe, or rather of unequall thinneſſe; or into ſuch a cloud whoſe parts are ſome of them of a ſpungie nature, and ſome of them more cloſely compacted: For the thinner and more ſpungie parts receiving the light do repreſent certain cleare and white ſtreaks or

or beams, whileſt the thicker parts and more full of humour are not pierced at all, but look of another hue; from whence it comes to paſſe that theſe ſtreams are often of differing and many colours.

Artic. 5.
Of Circles or Crowns.

CRowns, Garlands, or Circles, are ſeen ſometimes about the Sunne, ſometimes about the Moon, and ſometimes about the brighteſt Planets, as *Jupiter* & *Venus*. This appearance is commonly called [a] *Halo*; and the matter or ſubject of it is a cloud, which muſt be endued with three properties: Firſt, that it be thin and not thick; Secondly, that it be equall and uniform, not in one part more thinne then in another; And thirdly, that it be directly under the Sunne, Moon, or any ſuch ſtarre whoſe beams cauſe the circle: Unto which adde this laſt, namely that it be not diſquieted by any winde. And being thus placed and compoſed, look how a ſtone caſt into the water makes a circle untill the force of the blow be waſted; So this watery cloud being ſtruck with the force of the Sunnes, Moons, or ſtarres beams, doth retain their light in form and manner of a circle. Or rather thus; the beams of the ſtarre, &c. equally diſperſing themſelves ſo farre as they can, do at their utmoſt extent make a refraction in the cloud, which muſt of neceſſitie be round, becauſe the body of the ſtarre it ſelf is round, and cannot poſſibly ſend out his beams further in one place then in another. This therefore made *Du Bartas* ſay,

Sometimes a fiery circle doth appeare,
Proceeding from the beauteous beams and cleare
Of Sunne and Moon and other ſtarres aſpect,
Down-looking on a thick-round cloud direct;
When, not of force to thruſt their rayes throughout it,
In a round crown they caſt it round about it.

And

[a] Halo, Græcis ἅλος *nominatur, hoc eſt, Area: quoniam (ut Senecà teſtatur) apud veteres terendis frugibus loca deſtinata ferè rotunda fuerunt. Latini Coronam vocant, quia rotundâ plerumque conſtat figurâ, & ſidera cingere atque coronare videtur.*

And note that ſometimes it appeareth greater, ſometimes leſſer: which is in regard of the qualitie of the matter whereof the cloud conſiſteth. For if it be groſſe, the beams piercing it can ſpread or dilate it but a little way. If it be thin, they then are able to dilate it further.

And as for their ſignifications, they ſometimes ſignifie rain, ſometimes winde, ſometimes fair, cleare, and calm weather, ſometimes froſt, ſometimes tempeſt, and ſometimes ſnow.

The ſignification of Circles.

1. Rain, if the circle wax altogether thicker and darker.

2. Winde, when the circle breaketh on the one ſide: The reaſon whereof is, becauſe the circle is broken by the winde which is above and not yet come down to us here below: But by this effect above, we may gather both that it will come, and alſo from what quarter; namely from that quarter where the circle breaketh firſt.

3. But if it vaniſh away and be diſſolved altogether, or in all parts alike, then it is a token of fair weather:

4. Or of froſt, in winter, when it is great about the [f] Moon:

5. Of ſnow, when at the ſame time of the yeare it ſeemeth to be craggie and rockie:

6. Or of tempeſtuous weather, when it looketh ruddie, and is groſſe, and broken in many parts.

And thus much concerning Circles.

[f] They are very ſeldome ſeen about the Sunne, becauſe of winde in the day-time; or becauſe the Sunne either draweth the vapours too high, or elſe diſperſeth them too much. In the yeare 1104 there was a blazing ſtarre and 4 circles about the Sunne, which was a ſigne of the new kindling malice again between Henry the firſt, King of England, and his brother Duke of Normandy. Stow in his chron.

Artic. 6.
Of the Rain-bow.

THe Rain-bow is to be ſpoken of next: And this is nothing elſe but the apparition of certain colours in an hollow, watery, diſtilling, or dropping cloud directly oppoſite to the Sunne, repreſenting in its faſhion half a circle.

Or

Or thus; It is a bow of many colours, appearing in a dewie, dark, droppie, and hollow cloud, by reflection of the Sunne-beams oppoſite to it. For this is certain, that lightſome or luminous bodies do cauſe images, colours, or appearances upon ſlender, clean, and thin objects: Now of all bodies the Sunne is moſt lightſome; but the aire and water are clean, thin, and ſlender.

The efficient cauſe of the Rain-bow.

Here then it appeareth that the Efficient cauſe of the Rain-bow is the light or beams of the Sunne; which falling into fit, apt, or convenient matter, oppoſite to them, are refracted and reflected to our ſight.

The materiall cauſe.

The Materiall cauſe is not water in act, nor yet thick aire, but a dewie vapour; which is not *continuus, ſed potiùs corpuſculis guttularum diſcretus*; not abſolutely of one bodie, but rather ſevered into many bodies, or little drops.

The formall cauſe.

The Form of it is to be gathered out of the Figure and Colours.

And for the Figure, we ſee it is circular: But yet it never repreſenteth to us any more then a Semicircle; and not alwayes ſo great an arch: The reaſon of which is, becauſe the centre or middle point of the Rain-bow, which is diametrally oppoſite to the centre of the Sunne, is alwayes either in the Horizon, or under it: So that ſeeing our ſight of the heavens is cut off by the earth in ſuch a manner as that we can never ſee above half of them, it muſt needs be, that the appearance of this circle be either more or leſſe to us, according to the Sunnes great or little diſtance from the Horizon.

The colours in the Rain-bow.

And as for the colours, they are commonly accounted three, viz. Ruddie, Green, and Azure. To which ſome adde a fourth. The firſt is in the thickeſt and darkeſt part of the cloud: For where a bright ſhining falleth upon a darkiſh place, there it repreſenteth a ruddie colour, being ſomewhat like a Flame. The ſecond is cauſed by a more weak

weak infraction, being in a remoter and more waterie part of the cloud: whereupon it looketh greeniſh.

The third, which is further into the cloud, proceeds from the weakeſt infraction, and is therefore of a more dark and obſcure colour, tending to a blew or an azure hue. And ſometimes a fourth colour is alſo perceived, being very like a yellow or orenge-tawnie, proceeding from a commixture of the red and green, according to *Ariſtotles* judgement: of which the learned may ſee *Jul. Scaliger, exerc.* 80. *ſect.* 4.

Now theſe colours in ſome rain-bows are more vehement or apparent, in others more remiſſe or obſcure; which is according to the aptneſſe of the cloud, &c.

Moon-bows.

And in rain-bows cauſed by the moon (for ſometimes, though ſeldome, they have been ſeen in the night) the colours are weaker, whiter, and leſſe conſpicuous; being in a manner as white as milk: which is, becauſe the moon having a borrowed light, is nothing ſo ſtrong in the projecting her raies, but farre more feeble then the ſunne.

The finall cauſe.

But come to the finall cauſe, and you will finde it twofold; partly Naturall, partly Supernaturall.

How to judge of the weather by the rain-bow.

As it is Naturall, we take it either as a ſigne of rain, becauſe it cannot appeare but in a waterie cloud, which is ſo prepared that it is ready to fall in very drops: or as a ſigne of fair weather; namely then when the beams of the ſunne are ſtrong, and the heat of it ſo great that the moiſture of the cloud is dried up, and the drops attenuated into thin aire. All which may be diſcerned after this manner, viz. when the colours grow either darker and darker, or clearer and clearer. For if the colours appeare dark, thick, or obſcure by little and little, till at the laſt they bury themſelves in a black cloud, then rain followeth. But if the colours by degrees grow clearer and clearer till at the laſt they vaniſh away, then we may

pect fair and bright weather. And this as it is a naturall ſigne.

But now as it is Supernaturall: and then we behold it as a ſigne or ſymbole of Gods mercie towards the world, betokening that it ſhall never be deſtroyed again through any Deluge or univerſall Floud. For *it ſhall be a ſigne of the covenant* (ſaith God) *between me and the earth*, viz. *that there ſhall be no more a Floud of waters to deſtroy the earth*, Gen. 9.

The derivation of Iris, ſignifying the rain-bow.

From both which ſignifications or ends, it may well be called *Iris*; for εἴρω in the Greek is as much as *dico* in the Latine, ſignifying *I ſay, I publiſh, I tell*, or *I declare*. *Iris* therefore comes from εἴρω, *dico*; Firſt, becauſe this bow publiſheth or telleth to us the conſtitution of the aire. Secondly, becauſe it declareth the covenant of God made with the world after the Floud; ſhewing that his wrath is ſo farre forth appeaſed, that he will never drown the world again; which appeareth even in the order obſerved in placing the bow: for we ſee it with the bended ends downwards, and as one that holdeth a bow in peace; inſomuch that had it a ſhaft in it, the earth ſhould not be ſhot; neither ought man to fear that the Lord will ſhoot any more ſuch arrows of diſpleaſure as before.

Some have thought that there was no rain-bow before the Floud, but that it appeared ſince; becauſe God ſaith, *When I make the heaven thick with clouds, I will put my bow in the clouds*, Gen. 9.

The rainbow was before the Floud.

To which it may be anſwered, that God ſaith, not that he will of new create a bow, but that he will then put it into the clouds ſo as it never was before; namely to be a ſigne, &c. So that although it were not as a ſigne of any covenant before the Floud, yet without doubt it was as a Meteor then as well as now; and therefore was: otherwiſe we might deny both bread, and wine, and

water

water to be before the inſtitution of the Sacraments: for it is the ſame reaſon. Wherefore,as there was water before ever it was uſed for the water of regeneration in the Sacrament of Baptiſme; and as there was bread and wine before ever they were uſed as ſignes at the holy Communion: ſo alſo the rain-bow was before ever it had that office to be a ſigne of Gods covenant between him and mankinde, juſt as at this day it appeareth even to ſuch as are not of the Church;very Heathens and Pagans beholding it as well as we.

Beſides, there were from the beginning the ſame cauſes in nature to produce it: for there wanted neither a ſunne to draw vapours from waterie places, nor yet a convenient place in the aire to thicken them into clouds; neither was the ſunne deſtitute of ſparkling raies to make reflexion and infraction: but as it is cauſed now, ſo alſo then; and to think otherwiſe were to think amiſſe.

Some again have been perſwaded that this bow was before, but was not in a cloud before. And thus thought certain amongſt the Hebrews.

But this is a reaſonleſſe aſſertion, and againſt all Philoſophie, and not at all approved by Divinitie. For how could that appeare in a cleare aire, which can have no exiſtence or being, but in a dewing or diſtilling cloud? Verily of both abſurdities the former was the better, namely that it was not at all: and yet that alſo wanted grounds to uphold it, as hath been ſhewed, and is yet further manifeſt. For ſeeing the Lord God in ſix dayes finiſhed the creation, and ſet the perfect order of all his creatures; it followeth that the rain-bow had then his place either in being or in power. And thus from two abſurdities I bring you to a third. For furthermore, it hath been the opinion of ſome idle doting brains to think that there ſhall be no rain, nor rain-bow, 40 yeares before the

A groſſe abſurditie of ſome who think that there ſhall be no rain nor rain-bow 40 yeares before the worlds end.

the end or deſtruction of the world by fire ; becauſe the very aire (ſay they) muſt be prepared a long time before by a continuall drineſſe, and each thing made fit for combuſtion.

Which ſurely is a brain-ſick fancie. For what do they in this but ſhew their extream follie ; derogating, not onely from reaſon, but alſo from the power of God? For is not God able to deſtroy the work of his own hands without ſuch a ſuppoſed preparation, and make the world combuſtible in an inſtant, if need be? Or ſhould there be no rain, and conſequently no bow (becauſe it appeareth in a waterie cloud) then how ſhould the fruits of the earth be preſerved? Great famine and miſerie muſt needs follow in the world if this be true. For when the clouds drop no fatneſſe, then the ground pines away through barrenneſſe ; and when the heavens are iron, then the earth is braſſe: whereas it is manifeſt, that at the coming of Chriſt there ſhall be pleaſant and fruitfull times; times full of mirth, wherein they ſhall eat and drink, marrie and be given in marriage, even as it was in the dayes of Noah. Who therefore will think that theſe men are in their right mindes, whileſt they affirm that no rain ſhall fall by the ſpace of 40 yeares before the world endeth?

What the Jews do at the ſight of the rain-bow.

The Jews as ſoon as they behold this bow (not daring to gaze upon it) do preſently go forth and confeſſe their ſinnes, acknowledging that they are worthy to be deſtroyed with a Floud as the old world was; and in being ſpared they celebrate the mercie and clemencie of God for ſparing them. But, ſaith [a] *Pareus*, although they mingle this religion with much ſuperſtition, becauſe they dream that the name of *Jehovah* is as it were engraven on the bow, and becauſe they turn their eyes away as from the majeſtie of God appearing there, not daring to look upon it, leſt (as may be ſaid) beholding the

[a] On Gen. chap. 9. pag. 898.

the face of God they die: Yet it is meet even for us upon the ſight of it to be ſo farre forth touched with a reverence towards God, that we paſſe not away the ſymbole of the covenant with a brutiſh dulneſſe, leſt thereupon we grow unmindefull of Gods ſeveritie and goodneſſe.

There is alſo another thing obſervable concerning this bow which I may not forget; namely this, The myſterie which (according to ſome mens fancies) is involved in the colours. For in a myſterie they would have it betoken both the baptiſme of Chriſt, by water and fire; and alſo the two judgements of the world, the one alreadie paſt, the other yet to come: that which is paſt appeareth in the watery colours, ſhewing that the world hath been drowned: that which is yet to come appeareth in the fiery colours, ſhewing that the world ſhall be deſtroyed by fire, or burnt up at the day of judgement. But (ſaith [b] one) theſe and the like applications are wittie and prettie, rather then wiſe and pithie: I leave them therefore, and proceed.

[b] Dr. Willet on Gen.

Artic. 7.
Of chaps or gapings in the skie.

THe Philoſophers call this Meteor *Chaſma*, ἀπὸ τῦ χαί-νω, *quod eſt hio, vel dehiſco*, to gape or open: and in Latine it is *Hiatus*, a word of the ſame ſignification. There are two kindes of theſe gapings or openings: the one wide, the other round. And although I reckon theſe amongſt ſuch fiery Meteors, as are fiery onely in appearance; yet it may be that they ſometimes burn, and ſometimes onely ſeem to burn.

They ſeem to burn when the Exhalation by reaſon of the [a] want of viſcuous matter is not enflamed, but enlightened rather on the outward parts, having much raritie or thinneſſe in them: at which time the middle part receiving

[a] Titelman. compen. nat. Philoſoph.

ceiving no light, in regard that it is black and thick, there appeareth as it were a gulf in the skie. The reaſon whereof is, becauſe the black is compaſſed about with white; which white preſenting it ſelf[b] ſooner to the ſight then the black, makes the black ſeem to be farre off, and the white neare hand: and the black being farre off, ſeems like a gaping deep: which (as hath been ſaid) is ſometimes [c] greater, ſometimes leſſe, according to the faſhion or quantitie of the Exhalation, or cloud repreſented by it. And after this manner do cunning painters deceive the eye in ſhadowing their pictures. For when a bright, cleare, and aiery colour is laid circularly, and a thick, dark, and obſcure colour in the middle of it, then the appearance is like ſome gulf, hole, deep or pit: which they faſhion diverſly according to their skill in fancying the laying of their colours.

All this is when it burneth not.

But note that ſometimes this Meteor burneth in very deed. Which is when the Exhalation hath much viſcoſitie or clammie matter in it; the thick and dark not burning, but remaining in the middeſt; and the thinner parts on fire, deceiving the ſight with a ſeeming gaping, as before when there was onely light in thoſe thinne parts in ſtead of fire.

And thus have I ſhewed you the naturall cauſe of all fiery Meteors.

b *Quæ clara ſunt, albóque apparent colore, celeriter viſum movent: quæ vero nigra & obſcura ſunt, minùs cum afficiunt.*

c *Si magna fuerit, vorago; ſi non ita magna, hiatus nominatur. Titelman.*

Sect. 2. Parag. 6.

Of watery Meteors and their ſeverall kindes.

NOw it followeth that I ſpeak ſomething of watery Meteors, and ſhew after what manner they are generated. They be called watery becauſe they conſiſt moſt of water; their ſubſtance being that kinde of Exhalation which we call *Vapor*, and not *Fumus*.

And that which in the firſt place offereth it ſelf, is *Nubes*, a Cloud.

Artic. 1.
Of Clouds.

I Begin therefore with clouds. And a cloud is a vapour or Exhalation cold and moiſt, drawn from the earth out of wet or watery places, by heat of the Sunne, into the middle Region of the aire; where by cold it is ſo thickened and knit together, that it hangeth, untill either [a] the own weight, or ſome reſolution, cauſeth it to fall. If it be a great cloud, it is *Nubes*; if it be but a little one, it is called *Nubecula*. The name comes *ab obnubendo, id eſt, operiendo cœlum*, from hiding or covering the heavens: becauſe a cloud (through the thickneſſe that the vapour is condenſed into) hindereth, that a leſſe portion of the heavens is conſpicuous, then otherwiſe would be.

It is alſo two-fold; either fertill, or barren.

A fertill or fruitfull cloud affordeth rain: but a barren cloud doth not; becauſe it is at length by the blaſts of winde, and vertue of the heavenly bodies, turned into thin aire.

And to either of theſe clouds belong motion & colour.

Their motion is cauſed by the winde moſt commonly, through whoſe force they are driven to and fro: But if the windes blow not, then they are drawn along by the Sun, and made a companion with him in his travels, alwayes moving that way which the Sunne goeth.

Concerning their colours I ſpake before in *Paragraph* 5. *Article* 2. And therefore here you may expect the leſſe: yet let me ſay that they are either ſimple or mixt.

Black or white are ſimple; becauſe they conſiſt of no other colours. But red, green, and the reſt, are mixt.

They

[a] It is ſaid that clouds have ſometimes fallen down to the earth with great noiſe, to the terrour & damage of ſuch as had them in their Zenith, which clouds came but from the higheſt part of the loweſt region: yet nevertheleſſe they were generated in the middle Region, but waxing very heavie have ſunk down by little and little, till at laſt they ſeem to fall no further then the loweſt Region: But this is ſeldome. They may alſo fall by drops through their own weight.

They appeare white when the vapour is thin; for then it is eaſily pierced by the light, which diſperſeth it ſelf into it.

But when they appeare of a [b] black colour, then the vapour is thick, and more cloſely condenſed: inſomuch that the beams of light cannot be admitted.

As for their redneſſe, it may be cauſed two wayes, according to *Goclenius*: either through the aduſtion of the aire, *magno æſtu incenſum*, as he ſaith: Or *propter retuſum radium Solis*, by reaſon of the beams of the Sunne beat back again; which, falling upon a watery cloud that is thickly condenſed, pierceth not; but being doubled cauſeth redneſſe, as in the morning: and this is a ſigne of rain: but the other is not. For the other redneſſe is in ſuch a cloud as ſheweth the drineſſe and aduſtion of the aire; the cloud it ſelf conſiſting of a ſmokie humid ſubſtance, unto which is joyned a kinde of drie and aduſt matter. This therefore is a ſigne of [c] fair weather, being ſeen in the evening towards the place of Sun-ſetting; according as it hath been ſaid of old, *Serò rubens cœlum, manè indicat eſſe ſerenum.*

[b] *Nigredo in nubibus ob vaporum denſitatem oritur, quæ lumen colluſtrans non admittit. Et ſic è contrà fit Albor; viz. è vapore ſubtiliore & parùm conſpiſſato, quem radius facillimè penetrat, & æquabiliter in illum ſpargitur.* Goclen. *Diſput. Phyſ.*

[c] *Veſpertina rubedo ſerenitatem ſignificat, quia rubedo nubem raram æſtu ſolis exiccatam, ejúſque humorem abſumptum eſſe denotat. Sed matutina rubedo pluvias aut ventos promittit, quia vapores humidarum & ſubdenſarum nubium abſumi non potuerunt.* Ibid.

Concerning green clouds they are altogether watery, and as it were already reſolved into water; which receiving into them the light appeare green, like unto water in a great veſſel, or in the ſea and deep rivers.

Blew clouds come ſomething neare to the nature of black, excepting that the black are thicker.

And note, If when the Sunne ſets, there appeare or ariſe black dark clouds, it portendeth rain. Alſo obſerve the place oppoſite to the Sunne at his ſetting, viz. the Eaſt, and ſee if that be cleare: for if it be peſtered with black clouds, there is but ſmall hope of fair weather that night, or the next day.

The height of the clouds.

The common opinion is, that the height of the clouds is not above nine miles. But it is agreeable to no reaſon

at all why any certain height ſhould be determined: for they are of unequall heights, differing both according to the matter of their compoſure, and alſo according to the time of the yeare; being lower in winter then in ſummer: for when the ſunne hath the greateſt force they then aſcend the higher; and in his ſmaller force they hang the lower. By which it appeareth that the ſunne helpeth to uphold them, and keepeth them (although heavier then the aire) even in the aire: for they ſometimes alſo follow his motion.

How the clouds naturally hang in the aire.

But note that it is not the ſunne alone which upholds them; for the aire it ſelf is alſo a cauſe of their not falling; and that both within the clouds, and alſo without them: within the clouds; for the clouds are of a ſpungie nature, and full of pores, which are filled with aire leſt there ſhould be *vacuum*; and this aire heaveth them up, cauſing them to aſpire: without the clouds alſo, becauſe they do as it were float up and down in the aire, as ſome heavie things do in the water, and yet not ſink, unleſſe their ſubſtance be too earthie and heavie.

Artic. 2.
Of Rain.

FRom clouds I proceed to ſpeak of rain. And rain is nothing elſe but as it were the melting of a cloud turned into water. Or, according to *Ariſtotle*, it is the flux of a fertill cloud reſolved by the heat of the ſunne into diſtilling drops of water, which being depreſſed with their own weight, fall down to the earth. For when the matter of the cloud, being a cold vapour, and earthly humour, is drawn from the earth and waters, into the middle Region of the aire, and there thickened through the cold, dwelling in the confines of that place, it is at the laſt diſſolved, and cannot therefore but fall down in drops: which drops, if they be great, are cauſed,

either by the quick reſolution of the cloud, or elſe by the little diſtance of it from the earth. But if they be ſmaller, then either the [a] great diſtance or ſlow reſolution maketh them of no ample quantitie.

[a] This may be ſeen if any will but aſſay to poure water from an high place.

The firſt of theſe is named *nimbus*; the other is called *imber*.

And note that the diſſolution (as hath been ſaid) proceedeth out of heat; which is not onely of the ſunne, but of windes alſo of an hot temper: as is ſeen in the ſouthern winde, which bloweth up rain ſooner then any other winde. And as for rains which come from cold coaſts, and at cold times of the yeare, if the cloud be not at ſuch times (as ſome may think) diſſolved through the heat of any winde, it diſſolveth it ſelf through its own weight, (being a little holpen by the ſunne) for it continueth in the aire even whileſt it can ſtay no longer. And at theſe times alſo, if we conſider all aright, we ſhall finde that the winde ſomewhat helpeth, although not ſo ſpeedily as from hotter coaſts: for naturally there is a kinde of heat in every winde, (becauſe it is an Exhalation hot and drie) although by accident (as from the nature of the place over which it paſſeth) it may be altered: of which I ſhall ſpeak more afterwards. And beſides all this, the ſecret influence of the Planets worketh greatly towards the diſſolution of the foreſaid vapours.

But I proceed. And now it followeth that I divide all ſorts of rain into two kindes: Firſt, ſuch as are ordinary; ſecondly, ſuch as be extraordinary.

Ordinary and extraordinary rains.

I call thoſe ordinary when nothing but water falleth. And I call thoſe extraordinary which others call prodigious rains: as when worms, frogs, fiſh, wheat, milk, fleſh, bloud, wooll, ſtones, iron, earth, &c. fall from the clouds. *Plinie* makes mention of many ſuch prodigies as theſe, in the 56 chapter of his ſecond book; ſetting down the times when they happened.

Prodigious rain.

Concerning

Concerning all which, next under God (the cauſer of the cauſes cauſing them) theſe or the like reaſons may be urged to ſhew how it is poſſible they ſhould be procured, and upon what cauſes they naturally depend.

1. And firſt for the raining of worms; it may be thought that the putrefaction of ſome dead carcaſſes or other hath been drawn up into the aire as fumes and vapours are, where it breedeth ſuch worms as uſe to breed out of the like matter here below. Worms.

2. The like may be ſaid of frogs, when the vapour is exhaled out of mariſh grounds at ſuch times as they engender. Frogs.

3. So alſo of fiſhes; excepting that (as is ſuppoſed) the force of windes may ſuddenly ſweep away little frey out of ponds upon montanous places: and ſo alſo little young frogs, with many the like things, may be taken up. Some write of a whole calf falling from the clouds; and have been thereupon perſwaded that it is poſſible, of Vapours and Exhalations, with the power of heavenly bodies concurring, a calf may be made in the aire. But this is idle. It was therefore (as others write) taken up in ſome ſtorm of whirlwinde, and ſo let fall again. Fiſhes.

4. As for wheat and other grain, it hath been obſerved that their raining down hath often come in caſe of extremitie, to the great preſervation and refreſhment of the diſtreſſed: in which regard it may be ſuppoſed that it was an immediate work of God, wrought without the rule of nature: ſo, that were all the wits in the world preſt into one, yet were they all too weak to ſhew a true cauſe of ſuch a prodigie. Which made *Du Bartas* write concerning ſuch; Wheat.

Let them declare what cauſe could yerſt beget
Amid the aire thoſe drizzling ſhowres of wheat,
Which in Carinthia *twice were ſeen to ſhed;*
Whereof that people made them ſtore of bread.

To ſpeak therefore as I think, I will not boldly affirm how this was cauſed, but onely touch at the poſſibilitie of it; namely, that it might be effected like unto other ſtrange rains, firſt drawn from the earth into the aire, and then ſent down again. For (as I have [b] already ſaid) in ſhewing probable reaſons for ſuch things as are ſtrange, we do alſo include God the chief and beſt cauſe of all things. And ſo alſo we reade, that when the Red ſea was bayed up with a double wall, to give the children of Iſrael ſafe and free paſſage through it, God ſent a ſtrong Eaſt-winde all that night, &c. by which the waters were divided. Exod. 14. 21. And again, when the Quails came and filled their tents, being as it were rained round about them; they were brought from the ſea with a winde, and let fall a dayes journey on this ſide, and a dayes journey on that ſide, even round about their camp. Numb. 11. 31.

b Paragraph 5. art. 3. and elſewhere.

He that hath ſeen (ſaith [c] one) an egge-ſhell full of dew drawn up by the ſunne into the aire, in a May morning, will not think it incredible, that wheat and other grain ſhould be drawn up in much hotter countreys then ours is, much rather the meal or flower which is lighter.

c Fulk, in his Meteors.

Milk.

5. By the like reaſon alſo it ſometimes raineth milk: for when the *intenſiſſimus ſolis calor*, the vehement heat of the ſunne, ſhall either draw milk from the udders * of cattell, and ſhall mix it with the other parts of the cloud; or ſhall ſo throughly trie, purifie, digeſt or concoct the vapour, that it may look ſomething white, then will the drops look as if it rained milk.

* Which may the ſooner be done in ſummer, and in hot countreys.

Fleſh.

6. As for the raining of fleſh, it is ſuppoſed to be after this manner, namely through the drawing up of bloud from places where much bloud hath been ſhed, which being clottered together ſeemeth as if it were fleſh.

Bloud.

7. And ſo alſo it may rain bloud; namely when it is not

not clottered together, but thinner, &c. In the yeare of Chriſt 480 was ſuch a rain. As alſo in the yeare 864, neare unto *Brixia* in *Italie*, was the like. Yea and before either of theſe times, our own [d] chronicles tell us that in the dayes of *Rivallo* King of the *Britains*, we alſo had bloud rained; upon which enſued great mortalitie of people. Hiſtories make mention of the like wonders at other times.

d Lanquer, stow, &c.

Object. But, ſay ſome, there is often great ſtore of bloud ſpilt, and yet no prodigie appeareth.

Anſw. To which is anſwered, that it is not the ordinarie exhaling vertue which reſteth in the ſtarres and Planets that can draw up ſuch bloudy vapours, although much bloud be ſpilt; but then onely when there is a more unuſuall concurrence of cauſes: for ſometimes they are diſpoſed to one thing, ſometimes to another. And for the working of any ſtrange thing, it muſt be when there is a ſtrange kinde of combination amongſt them. To which purpoſe we know (although we cannot alwayes directly ſee and demonſtrate how they are mixed and combined) that they principally intend and cauſe at the ſame time other changes, of which the viſible prodigie is but the proclaimer or fore-runner: as, if you look but a little before concerning Comets, you may ſee, and ſo reſt ſatisfied.

And unto this alſo adde, that there may be drops like unto bloud, and yet no bloud drawn up: And this may be, either when the Sunne draweth vapours out of putrified watery places, in which (as I have often ſeen) in a drought reſteth much ſlimie and red-coloured corrupted water; or elſe when the Sunnes immenſive heat doth ſo boyl the water in the cloud, that like unto the urine which a man maketh in a burning fever, it looketh red when it falleth. The like cauſe I gave before unto the water of a white colour: but know that it muſt then

 be

be of another qualitie, the matter of the vapour I mean: for there are ſome kinde of waters, as is well known, which being boyled turn to white ſalt, &c. And as for a red colour, the ordinarie rain ſheweth that it is poſſible: for we ſee that ordinary rain-water looketh alwayes more brown then ſpring or river-water, being as if a more powerfull operation would turn it into red.

Wooll. 8. The raining of wooll or hair, is when a certain moſſineſſe like wooll, ſuch as is upon quinces, willows, and other young fruits and trees, is drawn up by the Sunne among Vapours and Exhalations, which being clottered together falleth down like locks of wooll, or hair.

Stones. 9. Concerning ſtones, they proceed from earthly matter gathered into the clouds, as before was ſhewed concerning the Thunder-ſtone, &c.

Plinie, in the 58 chapter of his ſecond book, writeth of a ſtrange ſtone which fell out of the heavens; the fall whereof was foretold by *Anaxagoras* in the ſecond yeare of the 78 Olympiad.

Iron. 10. Iron may alſo drop out of the clouds, when the generall matter of all metalls, which is quickſilver and brimſtone, with the ſpeciall matter of mixtion making iron, are all drawn up together, and there concocted into metall: Or (as one ſaith) *Quando vapores metallici aut ſulphurei in aëre indurantur, vehementi ſiderum caliditate*; When metallick vapours, or vapours of a ſulfurous nature, are hardened in the aire by the vehement heat of the ſtarres.

Earth. 11. And as for earth, chalk, dirt, and the like, it is drawn up in thin duſt at the firſt with the vapour: Or elſe, by force of ſome winde blowing from caverns, or holes of the ground, it is carried up; and being conglomerated, or as it were glued together, falleth down again.

12. But

12. But beſide all theſe, there have ſometimes been red drops, which falling upon mens garments have made a ſtain like unto a croſſe. Such drops as theſe fell upon the [e] clothes of the Jews, when in the dayes of the Apoſtata *Julian* they went about to reſtore their citie and temple. For when the ſaid *Julian* raged with impietie and deviliſh fury againſt the Chriſtians, he gave the Jews licence to build their temple, that they might reſtore again their ancient ſacrifices, and the like things that they longed for: at which time *Cyril* was Biſhop of *Jeruſalem*; and he (to animate the Chriſtians) ſhewed that it was impoſſible for the Jews to finiſh that work which they had begun: alledging the prophet Daniel in his ninth chap. at the 27 verſe; and alſo that ſaying of our Saviour in the 24 of Matthew: by both which places it did appeare, that *their houſe was left unto them deſolate*, and that *there muſt not be one ſtone upon another*; but that *their deſolations muſt be perpetuall*.

Red croſſes.

e Ruffinus, *Hiſtor. Eccleſ. lib.* 1. *cap.* 39

Thus it happened to the Jews. But this ſurely was a thing altogether miraculous. For their red croſſes came not alone, but were accompanied with other prodigies. As firſt of all an Earth-quake, which overthrew and tumbled down their building which they had raiſed upon the old foundation. Then came forth a fire which conſumed all their engines and inſtruments. And laſt of all fell theſe drops, imprinting upon their clothes, croſſes with ſo deep a ſtain, as they were not able to waſh them out: And both the [f] ſame night, and night after, was alſo a bright ſigne of the croſſe ſeen in the skie, as *Theodoret* in his Eccleſiaſticall hiſtorie reporteth: adding herewithall, that when the Jews ſaw this, they fled and returned home, being perplexed through fear of a divine ſcourge; confeſſing that he, whom their forefathers had nailed to a croſſe, was God indeed.

f Theod. *Hiſtor. Eccleſ. lib.* 3. *cap.* 20

This was both the prodigie, and the iſſue of it: of which

which, being ſo plainly miraculous, I know not what to ſay.

Reaſons concerning Red croſſes at other times.

But I finde that other times have in a manner afforded the like. Wherefore (although I ſpeak nothing at all of theſe at this time thus miraculous) concerning them ſome reaſons may be given.

g *Lib.* 4. *cap.* 6.

*So alſo in Weſtphalia, *ann.* 1543. at Lovane, 1568. *ipſo Pentecoſtes die.* And in the yeare 1571 *in ditione Embdenſi, in Friſiis Orientalibus.* See Fromond. Meteor. *Lib.* 5. *cap.* 6. *art.* 3.

And not to go farre, *Magirus*, in the [g] Comment upon his Phyſicks, telleth us, that in *Suevia* a Province in *Germanie*, in the yeare of our Lord * 1534, the aire diſtilled certain red drops, which falling upon linen garments, made ſuch an impreſſion or ſtain as was like unto a croſſe. Which impreſſion (as he alledgeth out of *Cardan* his ſixteenth book *De ſubtilitate*) might be procured thus; viz. becauſe a certain kinde of extraordinarie dry duſt ſticked to thoſe garments; which, by the piercing or through-waſhing drops falling upon it, was ſo miraculouſly divided into parts, that there ſeemed a figure as of a croſſe. Or thus, becauſe the woven threads in themſelves had ſuch a form. Or elſe (which is moſt probable) becauſe the humour in the middle part lay on high, whereas the ſides were but thin, and faſhioned according to the daſhing of the drop. For when a drop falleth upon any thing with a kinde of force, we ſee that moſt of the humour reſteth in the midſt, whileſt certain ſparkling raies are daſhed about the ſides: And thus he thinketh it might be then, in the fall of thoſe ſtaining drops; which why they ſtain, hath relation to that which I ſaid before concerning the raining of bloud.

The devil many times worketh in the Aire.

* Pſal. 78. 49.

I will therefore now conclude; adding in the laſt place, that the devil, by Gods permiſſion, both often hath and alſo doth produce many ſuch prodigies as theſe that I have ſpoken of, with ſundry other like unto them; eſpecially amongſt the * Heathen, Pagan, and ſuperſtitious nations. For he is *quovis homine ſcientior*, more ſubtill then any man; his knowledge and skill whereby

he

he worketh wonders, ariſing, Firſt, from his ſpirituall nature, which proclaimeth a large meaſure of cunning and wiſdome in him: for we know that there is a greater meaſure of knowledge in man, then is in a brute beaſt, by reaſon of that nature which God hath given unto man above beaſts: and where there is a nature and a ſubſtance beyond either, there muſt alſo be knowledge above either. Secondly, God created him a good Angel; and although, like man, he loſt much by his fall, yet thirdly by his long obſervations, and continuall experience, he hath as it were made up the breach, or want of his created knowledge, by acquired skill: and therefore, when he hath * commiſſion, he can upon occaſion work ſtrange wonders. As for example, nothing more familiar or common in [h] *Lapland*, *Lituania*, and all over *Scandia*, as alſo in *Tartaria*, then to ſell windes to mariners, and cauſe tempeſts; which the witches and ſorcerers there procure by the help and power of the devil: wherein he ſheweth himſelf, according to his * title, *Prince of the aire*.

How it comes to paſſe that the devil's knowledge is farre beyond mans.

* Matth. 8. 31. Job 1. 12.

h *Saxo Grammat. Olaus magnus.*

* Epheſ. 2. 2.

Wherefore (as I ſaid) I do not doubt, but that many ſuch as the former ſtrange prodigies, eſpecially long ago in heathen times, and amongſt heathen people, were procured by his power. For what did the magicians in the ſight of Pharaoh, but as it were rain frogs, and turn the waters into bloud, although Moſes and Aaron were by?

Exod. cap. 7, & 8.

Beſides, it is apparent that in the little world, I mean when parties are poſſeſſed, the devil can cauſe them to vomit ſtrange things out of their mouthes and ſtomacks; as crooked pins, iron, coals, nails, brimſtone, needles, lead, wax, hair, ſtraw, live eels, and the like; of which many have been eye-witneſſes, confirming the ſame for truth. All which, he can as well and eaſily perform in the greater world; cauſing the aire to ſpit, and the clouds to

vomit (for his own advantage) moſt ſtrange and prodigious things.

Zanchius his opinion was not much differing: for, ſpeaking of ſtrange rains, [i] he confeſſed (concerning ſome of them) that they were produced by ſuch cauſes, or the like, as I before alledged; concluding for the reſt which were more occult, that they were truely prodigious; and cauſed, either by the power of God, as portenders of his wrath; or elſe by the ſleights of the devil, through Gods permiſſion.

[i] *Sentio (inquit) tales pluvias verè prodigioſas eſſe, & fieri aut ſolâ Dei potentiâ, eòque iram Dei portendere; qualis fuit illa cùm pluit ſulphure & igne ſupra Sodomam, & alias urbes: aut etiam dæmonum præſtigiis, Deo permittente fieri. Zanch. Tom. 3. lib. 3. cap. 5. quæſt. 6. Theſ. 3.*

Artic. 3.
Of Dew.

DEw offers it ſelf in the next place, as being a neare kinſman to rain. For it conſiſteth of a cold moiſt vapour which the ſunne draweth into the aire: from whence, when it is ſomewhat thickened and condenſed through cold of the night, and alſo of the place whither the ſunne exhaled it, it falleth down in very ſmall and indiſcernible drops, to the great refreſhment of the earth.

Why dew is but in the morning, and at evening.

And this is certain, that the morning and the evening are the onely times when it falleth; the reaſon being in regard of the ſunne, which both poſitively & privatively cauſeth it. Dew at night is cauſed privatively; dew in the morning, poſitively. At night or in the evening privatively, becauſe when the ſunne ſetteth, the loweſt part of the vapour, not being high enough to hang in the aire, falleth down through abſence of the ſunne. And in the morning poſitively, becauſe at the return of the ſunne the reſidue of the vapour, together with the augmentation of it (haply by ſome condenſed aire cauſed by cold of the night) is diſſolved by his approaching beams, and ſo made fit to fall, rather then hang any longer. For look what vapours are about the Horizon at the riſing of the ſunne, are diſperſed by his firſt approach; and ſo it comes

to paſſe that the morning as well as the evening affordeth dew. But know that if the vapour be not conveniently placed, that is, if it be very high above the Horizon, or in a loftie ſtation of the aire, then the ſunnes approaching beam neither diſſolveth nor diſperſeth it; whereupon we have no dew, but rather look for rain, becauſe the matter of dew is ſtill in the aire, ſtaying there till it be turned into a cloud, and ſo into rain. Why no dew is a ſigne of rain.

And now by this you may ſee what is the materiall, what the efficient, what the formall, and laſtly what the finall cauſe of dew.

The materiall cauſe is a ſubtil and moiſt vapour, being the thinneſt of all vapours.

The efficient cauſe is the temperate cold of the night, together with the abſence and approach of the ſunne.

The formall cauſe is the ſprinkling of moſt thin drops, which the hand can ſcarcely perceive.

And the finall cauſe, that (without rain) the earth may have ſome refreſhment.

Yet nevertheleſſe, this I finde concerning dew, as it is of a calorificall nature, that [a] *rorilentas ſegetes collectas putrefacit*, becauſe every externall heat is putrefactive. [a] *Titelm. Phyſ. lib. 6. cap. 6.*

Alſo dew is a great enemie to ſheep, begetting a deadly rot in them, or a dangerous flux of the bellie; which cometh to paſſe in regard of the humour being of much viſcoſitie, and not throughly refined or purged. Wherefore your carefull and skilfull ſhepherds will never drive out their ſheep to feed, untill the ſunne or the winde have licked the tops of the graſſe and flowers. Alſo know that a windie night hindereth the falling of dew. Some ſay three things hinder it; viz. winde, great heat, and cold: for the moſt temperate and calm times afford it; when other times want it. How ſheep may get a deadly flux. Hinderers of dew.

As for the kindes of dew, I cannot but joyn with them who divide them into three.

Three kindes of dew.

For there is, firſt, common dew; ſecondly, ſweet dew; and thirdly, bitter blaſting dew.

The common dew is ordinary.

Sweet dew is threefold. 1. *Manna*. 2. *Mel*. 3. *Ladanum*.

Manna.

Manna is ſaid to be white like ſugar: by ſome it is called *Cœli ſudor*. The matter of it is a fat and pure vapour, not tainted with any putrid or corrupt Exhalations. Or, according to ſome, it is *roris melliti genus*, *ſed concreti*, a kinde of hony-ſweet dew, but concrete or compact more cloſe together: it falleth in the Eaſt parts, *Arabia*, *Syria*, &c.

Of the Iſraelites Manna.

As for that *Manna* which God rained to the Iſraelites in the wilderneſſe, ſome think that it was altogether miraculous; others that it was *ejuſdem ſpeciei cum Manna vulgari*, of the ſame kinde with common Manna: which I alſo think; becauſe *Joſephus*, in his third book and firſt chapter, writeth, that in his dayes there was great ſtore of it in that part of Arabia wherein Moſes was 40 yeares with the Iſraelites. What ſhould hinder this opinion, I ſee not, unleſſe becauſe the common Manna is of a purging qualitie, and therefore to be taken for a medicine rather then for food. To which I [b] finde an anſwer, that haply at the firſt it might work the like effect on their bodies alſo, till it expelled the humours proceeding from the onyons and leeks that they eat in Egypt; but afterwards through cuſtome it might not work at all upon them: or elſe God, for their good, that they might be fed, might allay that qualitie in it by his mighty power: for God reſting from all his works on the ſeventh day, created no new *ſpecies* of any thing afterwards. *Fuchſius*, a learned Phyſician, teſtifieth that there falleth great ſtore of Manna upon the mountain of *Libanus*, which is eaten without harm, although they take it in plentifull abundance. Yet neverthleſſe it cannot be denied but

b. Bonfrerius on Exod.

that the Iſraelites had many things miraculous in theirs: as that they could not finde it on the Sabbath day: that he which gathered little, and he which gathered much, had alwayes ſufficient for his eating; and the like: All which proclaimed the power of God: In which regard he ſaith that he fed them with* Angels food. Not that the Angels eat of it; but becauſe it was *cibus excellentiſſimus*, a moſt excellent kinde of meat; inſomuch that were the Angels to be fed with bread, they might be fed with this. In which ſenſe, we alſo call that which is daintie meat, meat for a King, or a Prince, intimating the goodneſſe of it: So alſo the poets called their [c] *Myrrhina* or their *Nectar*, the drink of the Gods, becauſe it was a liquour of ſuch excellencie. But beſides this, the Scripture in like manner ſaith that it was bread from heaven, as well as Angels food. Not that it came from heaven, if heaven be taken in a ſtrict ſenſe; but becauſe it was a ſymbole of Chriſts deſcending from heaven, as it is John the 6. *Moſes gave you not that bread* (ſaith our Saviour) *but I am that bread of life come down from heaven*. Or elſe it is ſaid to come from heaven, becauſe it came out of the aire: for ſo the word ſignifying heaven is often uſed; as the fowls of the aire are ſaid to flie in the open firmament of heaven, Gen. 1.20. The clouds are called the clouds of heaven: and the windes the windes of heaven, although they be but in the aire, Dan. 7. And thus much concerning *Manna*.

The Iſraelites Manna was not without miracle in many reſpects.

*Pſal.78. 25,26. How Manna is ſaid to be Angels food.

c *Myrrhina* is a wine mixed with Myrrhe and other ſweet ſpices.

How Manna is ſaid to come from heaven.

The other kinde of ſweet dew is *Mel*, or an *Hony-dew*. Now this falleth, not onely in other countreys, but alſo here in England; and we cannot give it a more ſignificant name then a *Mel-dew*, being both as ſweet, and alſo of the ſame ſubſtance that hony is. Some ſuppoſe that it is drawn out of ſweet herbs and flowers, which I alſo beleeve, acknowledging that there is a kinde of reſudation of juice proceeding from them at a certain

Hony-dew.

convenient time of their growth: which juice is either drawn up as a vapour, and ſo ſweeteneth the dew in the aire by ſuch time as it falleth; or elſe, iſſuing of it ſelf from the ſaid flowers and plants, but not aſcending, it ſweeteneth the dew after it is come down or fallen on them, although the ſaid dew be but ordinary: for when ordinary dew falleth upon any of thoſe leaves which yeeld ſuch a reſudation or ſweat, it cannot but be ſweetened, although none of the ſweet liquour be drawn into the aire as a vapour with it. Now of theſe two chooſe which in your judgement is the moſt probable.

d *Lib.* 11. *cap.*12.

[d] *Plinie* witneſſeth that theſe dews are moſt common at the ſhining of *Syrius*, or the great[e] *Dog-ſtarre*; and that before the riſing of *Virgiliæ* or the[f] *Seven ſtarres* in the morning with the Sunne, they cannot at all be.

e It riſeth with *Sol* about the end of July.
f Which is about the 17 day of April.
Ladanum, the third kinde of ſweet dew.

Ladanum is another kinde of ſweet dew. *Arabia* hath great plentie of it, and no other countrey (as *Plinie* writeth) unleſſe it be[g] *Nabathæa*, bordering on the Arabick coaſt of *Syria*.

g *Plin. lib.* 12. *cap.* 17.

It is called *Ladanum*, becauſe it is a vapour falling upon the herb *Ladon* or *Ledum*; and is ſweetened by the juice iſſuing from the leaves of the ſaid herb, mixing it ſelf with the vapour. Goats hairs are often found amongſt it; becauſe the Goat feeding upon that herb, ſcattereth ſome of his hairs, which are incorporated with the vapour and the juice of *Ladon*, whileſt like gumme it is hardened by the Sunne.

And thus much of ſweet dews.

Blaſting dew.
h *Magir. Phyſ. Com. lib.* 4. *cap.* 6.

Now followeth that which I called bitter *blaſting dew*. The Germanes ſay it is[h] *Mildaw*; which is an improper name if it hath relation to that which we call *Mel-dew*. For *Mel-dew* (as before I ſhewed) is an hony-ſweet dew, and not a bitter dew. This therefore may be rather named *Ros noxius*, or bitter blaſting dew, becauſe it hurteth and killeth ſuch herbs and

plants

plants as it falleth on, and ſticketh or cleaveth to. This vapour hath much earthly matter in it, and therefore it remaineth white when the moiſture is gone. It is alſo corrupted: which comes to paſſe (as 'tis conjectured) through the often change of the Aire, which being tainted or infected through varietie of differing Exhalations, ſendeth down noyſome and unwholeſome dews, falling ſometimes even in the day time it ſelf. And here an end concerning dew.

Artic. 4.
Of white hoar-froſts.

I Come now to ſpeak of Froſts: for as dew claimed kindred of rain, ſo white hoar-froſt is of the houſe and linage of dew: As for example thus. When a vapour drawn into the aire is congealed before it can be turned into dew, then we have *Pruina* in ſtead thereof, or a white hoar-froſt: ſo that ſuch a froſt is nothing elſe but dew congealed by overmuch cold. [a] *Ariſtotle* affirmeth the like, ſhewing among other things, that both in reſpect of matter, and place of generation, they do well agree; to which is alſo pertinent the calmneſſe, clearneſſe, and quietneſſe of the time wherein either of them falleth. For both of them conſiſt of ſubtill thin vapours, and are generated in the loweſt region of the aire, becauſe upon ſome high hills there is neither hoar-froſt nor dew to be ſeen; the vapour (as it ſeemeth) aſcendeth not ſo high: And as for a windie obſcure time, it is an enemie to them both. The difference being, that hoar-froſt is congealed in the vapour before it can be turned into water: The one cauſed in a ſeaſon that is temperately warm; the other when it is cold. The materiall cauſe therefore of hoar-froſt is a ſubtill thinne vapour. The formall, is the congeal-

[a] *Lib.* 1. *de Mete. cap.* 10.

ing

ing of it; by which it differeth from dew. The efficient is the autumnall or winter cold: for thoſe are the moſt common and ordinary times peculiar to it, although ſometimes it comes as an unwelcome gueſt in the ſpring and ſummer, when the aire through cold is forward to ſend it. And laſt of all the end, or principall effects (when it cometh not out of ſeaſon) or the finall cauſe, is the contraction, or ſhutting up of the pores or breathing holes of the earth, and about the roots of plants; that thereby their ſpirits, being the chariots of heat, may be contained in their own bowels for the good of ſuch things as they give life unto. And thus much concerning froſt.

Artic. 5.

Of Snow.

THere is no great difference between the matter of ſnow, and matter of rain and hail; excepting (as ſome think) that the vapour for ſnow is of an hotter qualitie then the vapour for rain, and yet not ſo hot as that which is the materiall cauſe of hail. For it is a tenent amongſt Philoſophers, that hot things being cooled are apter for congelation then cold: as is ſeen in warm water taken from the fire, which will more ſuddenly and throughly be frozen then that which never felt the heat. And this comes to paſſe in regard of the pores or paſſages made into the water through heat: into which the cold entring, it both cooleth it the ſooner, and congealeth it the more.

Hot things cooled are ſooneſt congealed.

Neither is there any difference between white froſt and ſnow; excepting that froſt is made of a vapour before it be turned into a cloud; and ſnow of a cloud before it can be turned into water.

Ariſt. Met. *lib.* 1. *cap.* 11.

Snow therefore is a cloud congealed by great cold, before it be perfectly reſolved from vapours into water.

The matter of ſnow.

For

For if it ſhould come to the denſitie of water before the congelation, then it could not fall ſo like locks of wooll as it doth;but would be more cloſely compacted or joyned together, having little or no ſpungineſſe in it.

As for the whiteneſſe, it proceedeth not from its own proper colour,but rather in reſpect of thoſe parts which are more aierie then the reſt: whereupon I finde ſome [a] authours who determine the caſe thus;namely, that the white is by receiving the light into it at thoſe many ſmall parts; even as in froth and fome is ſeen. For, ſay ſome, [b] *Nix eſt ſpuma quædam, Snow is a kinde of froth:* and when it loſeth part of its frothie nature, and begins to melt; it loſeth alſo part of that whiteneſſe which at the firſt it retained. To this alſo may be added the coldneſſe that is infuſed into it when it is congealed, as being a cauſe of whiteneſſe; even as in phlegmatick bodies and cold countreys may be ſeen: For ſuch people are alwayes whiter of complexion then others; cold being the cauſe of that their whiteneſſe.

Why ſnow is white.

a Fulks Meteors.

b *Havenreut. com. in Ariſt. de Met. lib. 1.*

Such winters as are void of ſnow, are not ſo good for the fruits of the ground,as more ſnowie winters. Whereupon [c] *Plinie* affirmeth,that he which ſaith cleare winters are to be wiſhed, wiſheth no good for the trees and plants: and in that regard your experienced husbandman deſireth that the winter may be cold and ſnowie, rather then cleare and warm: For beſides this they alſo ſay, that a hot Chriſtmas makes a fat Church-yard.

Warm winters hurtfull.

c *Lib. 17. cap. 2.*

Wherefore, to ſee the earth do penance in a cold white ſheet, and the woods hang periwigd with wooll, bending their boughs in token of thankfulneſſe to gray-hair'd *Hyems* for their ſafetie from the cold, is a ſight both wiſhed and welcome: the good whereof will ſhew it ſelf, when liberall Nature,out of her bounteous wardrobe, beſtows more beauteous raiment on them.

And note it is found by experience, that it may ſnow

One and the ſame cloud may give the mountains ſnow, and the valleys rain.

on the mountains, and rain in the valleys, and yet both come out of one and the ſame cloud; which comes to paſſe for this reaſon, becauſe the ſnow coming from the middle Region melteth after it comes into the loweſt Region: for here is alwayes more heat then above where the ſnow is generated; yet not alwayes heat enough to melt the ſnow as it falleth; neither will the congelation be alwayes ſo weak as to ſuffer it. And thus alſo it comes to paſſe that we have ſometimes ſleet, which is ſnow and rain together.

The reaſon of ſleet.

Moreover (as ſome affirm) Cryſtall is made of ſnow: for [d] when the ſnow melteth upon the tops of high hills, and is afterwards frozen again, it then becometh ſo hard that it is a ſtone, and no other then that which we call Cryſtall.

Cryſtall.
[d] Fulk. Met.

Artic. 6.
Of Hail.

HAil is ſaid to be engendred of rain being congealed into ice, the drops freezing preſently after the diſſolving of the cloud.

Or (as ſome ſay) a cloud reſolved into water, in the fall congealed, maketh hail.

Ariſtotle aſſenteth to the ſame, affirming that the materiall neare cauſe is rain; the remote a cloud; the efficient an *Antiperiſtaſis*, or a mutuall adverſe ſtrife between cold and heat; as in the firſt book of his Meteors, at the 12 chapter, may be ſeen: affirming moreover that the precedent heat of the water whereof it is made, helpeth to the ſpeedie concretion of it: being agreeable to that which I ſaid before concerning ſnow; namely that it conſiſted of a warmer vapour then rain, and yet not of one ſo warm as that from whence hail proceedeth.

Whereupon I think we may make this a concluſion concerning

concerning hail, and ſay that it is an hot vapour drawn into the middle Region of the aire; where, by cold of that Region, it is made thick into a cloud, which falling down in drops like rain, is preſently met withall and encountered by the ſudden cold of the loweſt Region, and ſo congealed into a kinde of ice. Now this ſudden cold thus meeting with it, is in the higheſt part of the loweſt Region, and cauſed by an *Antiperiſtaſis* of heat from below, which forceth up the cold to the greater augmentation of it; and ſo (becauſe the vapour it ſelf at the firſt was alſo warm) it doth very ſpeedily turn it into ice: for ſeeing (as hath been ſaid) it was formerly warm, it is the ſooner cooled; becauſe heat having made it thin and full of paſſages, gives leave to the cold, both to pierce it more ſuddenly, and alſo more ſoundly. And this moſt commonly is the manner of generating hail. **What hail is.**

But know that hail may ſometimes alſo be made in the middle Region; and then it is without an *Antiperiſtaſis*: of which ſort for the moſt part is that ſmall and ſpungie hail falling in winter, when there is no ſuch heat in any part of the aire, by whoſe *Antiperiſtaſis* it may be congealed. For ſeeing the drops are ſcarcely come to the denſitie of water before their congelation, as alſo ſeeing they are ſomething ſwollen through the ſpirit of the Exhalation, they appeare not onely round, but alſo light, and hollow, or of a ſpungie ſubſtance, little differing from the matter of ſnow, being generated in the middle Region as well as this kinde of hail. And thus comes hail in winter. **Winter-hail how and where it is made.**

But at other times of the yeare, the hail being more ſtonie, or better hardened, it may well be cauſed by an *Antiperiſtaſis* proceeding from the heat of this loweſt Region, which ſendeth up, impriſons, and augments the cold above it.

And know that hail-ſtones are not alwayes of one and

The ſundry faſhions of hail-ſtones

the ſame bigneſſe, but are variable according to the quantitie of the drops whereof they be made; the cauſe whereof is their propinquitie or remoteneſſe from the earth, as was ſhewed before concerning the different drops of rain. And for the moſt part, know that they be alſo round, becauſe the drop is ſo. Yet neverthele ſſe they be ſometimes knotted and piked with many corners; or elſe faſhioned like a *Pyramis:* the laſt of which ſhapes proceedeth from the ſpirit of the vapour which aſcendeth to the top of the drop ſo ſoon as the loweſt part of it toucheth the congealing cold; and ſo aſcending, it makes it ſmaller above then below. And as for the triangled, knottie, or many-cornered ſhapes, they are cauſed thus, viz. when many are ſuddenly congealed and frozen into one.

Note alſo, that ſometimes little ſtraws, or light chaffie ſtuffe, is found within the ſtones; coming thus to paſſe, becauſe they were at the firſt blown up from the earth by the winde, and mixed with the vapour.

And again know that ſometimes you may ſee hail-ſtones all icie and cleare without, having within them (as their centre) little white round ſpungie parts. The reaſon of which is, becauſe thoſe white ones within were generated in the middle Region: but in their fall juſtling themſelves againſt the drops of rain which uncongealed came from the ſame cloud, they gat a waterie ſubſtance on their outſides, which being frozen to them looketh cleare like ice; and ſo makes the whole conglomeration appeare in the ſhape and faſhion before mentioned.

Hail doth many times much hurt.

Moreover, it hath not ſeldome been that hail hath done much hurt. Yet evermore the greateſt fear is whileſt the ripe corn ſtandeth in the eare. For a violent ſtorm of hail threſheth it ſo throughly, that turning the words a little, we may truely ſay, *Illa ſeges demum votis non*

reſpondet

reſpondet avari agricolæ. Such a ſtorm was felt in many parts of this kingdome not long ago, namely in the yeare 1631; which, about the beginning of harveſt (beſide the harm it did to other things) untimely beat out much corn in the fields to the great damage of many people. And at ſundry other times alſo heretofore the like ſad accidents have been. Wherefore the ancient husbandmen amongſt the heathen (as *Cato* and *Plinie* mention) had certain charming verſes to keep hail and other dreadfull calamities from their fields: in which they ſhewed themſelves of a like minde unto thoſe deviliſh enchanting haggs, who made the Poet ſing, *Carmina vel cœlo poſſunt deducere Lunam*, Charms can pull even the very Moon out of heaven. But this was not all: For beſide theſe, *Palladius* alſo makes mention of others who would take the skins of Crocodiles, Hyena's, or Sea-calves, and lay them here and there about their grounds; or elſe have a bloudie Ax lifted up in threatning manner againſt the heavens; or an Owl ſet ſtaring up, with her feathers ſpread abroad. All which are but magicall, deviliſh, and abſurd practiſes; ſuch, as even an old doting woman (whoſe confidence is the ſheers & the ſieve) cannot but acknowledge to be void of any the leaſt ſhew of reaſon: fit therefore for heathens onely, and not for Chriſtians. For let Chriſtians know that there is a God above, who can better ſecure their ſeed ſowen, then all thoſe magick ſpells and fooliſh fopperies. For,* *A fruitfull land he maketh barren becauſe of the wickedneſſe of thoſe who dwell therein.* Or, as it is in the 28 of Deuteronomie, *If thou ſhalt hearken diligently unto the voice of the Lord thy God, to obſerve and to do all his commandments, &c. then ſhalt thou be bleſſed in the citie, and in the field. Bleſſed ſhall be the fruit of thy body and the fruit of thy ground. But if thou wilt not hearken unto the voice of the Lord thy God, curſed ſhalt thou be in the citie, and curſed in the*

How the heathen uſed to ſecure their fields from hail and other harms.

*Pſal.107.34,35.

 the

the field. Curſed ſhall be thy basket and thy ſtore. Yea and curſed ſhall be the fruit of thy body, and the fruit of thy land.

Charms unlawfull.

Beſide, adde unto this the danger of deviliſh practiſes, with the unlawfulneſſe of charms and incantations. For thus again the Scripture ſpeaketh, *There ſhall none ſuch be found among you. For all that do theſe things are an abomination to the Lord*; as it is Deuteronomie 18. at the 10, 11, and 12 verſes.

Here then I end this diſcourſe concerning hail, and now proceed to ſpeak of miſts.

Artic. 7.
Of Miſts.

CONCERNING which, I like their diviſion beſt who make two kindes of miſt; the one aſcending, the other deſcending.

That which aſcendeth (ſaith Dr. *Fulk*) goeth up out of the water or earth as ſmoke, but ſeldome ſpreads it ſelf any thing farre; being moſt of all ſeen about rivers and moiſt places.

The other (ſaith he) namely that which goeth down towards the earth, is when any vapour is lifted up into the aire by heat of the Sunne, which, not being ſtrong enough to draw it ſo high that the cold may knit it, ſuffereth it to fall down again after it is a little made thick; and ſo it filleth all the aire with groſſe vapours, obſcuring the Sunne from ſhining on us.

The deſcending miſt is two-fold.

Now this laſt kinde of miſt may be two-fold; either congealed, or incongealed. That which is congealed comes neare to the nature of that matter whereof white froſts conſiſt; and is never but in a very cold time: it often alſo ſtinketh; which perhaps comes to paſſe in that the matter whereof it is made was drawn out of lakes, or other muddie

Why miſts and fogs ſtink.

and ſtinking places. Or thus; the matter of this miſt hath much earthy ſubſtance in it, which the hindering cold ſuffereth not to be conſumed: and from this comes an unpleaſant and an unwholeſome ſmell. This water, as alſo the water of diſſolved froſt, is very bad for cattell to drink: for it will quickly rot them. Neither can it be good for any one to walk abroad in ſuch a miſtie time: For, by breathing, we draw this unwholeſome vapour into our bodies, and ſo corrupt our lungs extreamly.

A rot for cattell, and an harm to men.

But for incongealed miſts, they are in warmer and more temperate ſeaſons, coming neare the nature of that matter which is the matter of dew. Some call it a ſterill vapour hanging neare the earth, being neither moiſt enough to drop like rain, nor yet hot enough to be carried up on high into the aire. Yet as ſterill as it is, ſometimes we finde that it is but the forerunner of rain: For when it departeth, if it aſcendeth, then rain followeth; if it deſcendeth, then expect a hot and fair day. And here an end concerning miſts.

How, by a miſt, to judge of the weather.

Artic. 8.

Of our Ladies threads, or thoſe things which fly up and down the aire like ſpiders webs.

FOr mine own part I muſt confeſſe I have not ſeen many who have writ any thing concerning this cob-web-like kinde of Meteor: and therefore at the firſt I reſted doubtfull, not knowing whether it were beſt for me to ſpeak any thing of it or no. But at the laſt finding that ſome falſe tenents were engrafted amongſt the ignorant, as if they perfectly knew what thing it was, I thought good to adde ſomething whereby their fond opinion might be taken away, who, as in a dream,

dream, ſuppoſe it to be ſpunne from out the ſpiders bowels : which cannot but be a ſtrange abſurditie. For it is evident that ſome one of theſe threads containeth more matter then many ſpiders ; their bodies not being big enough to afford a thing ſo copious: neither are their webs at any time of ſuch a length, or their threads of ſuch a thickneſſe, as theſe thus flying about the aire.

This Meteor therefore (ſince it is a Meteor) may rightly be ſuppoſed to proceed out of a through-boyled or digeſted vapour, being mixed with earthy and ſlimie Exhalations: and, although it be no ſpiders web, yet the temperature of it little differeth from that viſcuous humour and ſlimie * excrement which they in their ſpinning ſend out from them.

* And that's the reaſon why (when it hangs on the ſtubble, or the like places) we ſee ſo many little ſpiders buſie in it: for the matter doth as it were feed them, and (perhaps) through the Sun-beams, generate them.

As for the time, it appeareth neither in Summer nor in Winter, but in the Spring and Autumne; becauſe it requireth a temperate heat and temperate drineſſe. Yet the chief time is Autumne, becauſe the Aire hath then ſome drie relicks of the late Summers Exhalations left, and they are very neceſſary towards the tempering and generation of this Meteor.

And thus I end, not onely this Article, but the whole Paragraph alſo; coming at length to ſpeak of that third kinde of Meteor which in the beginning I propounded to be handled laſt.

Sect. 2. Parag. 7.

Of Aiery Meteors; wherein is ſhewed the naturall cauſe of windes.

Artic. 1.

Of the divers opinions concerning winde.

IN the former Paragraphs and Articles pertinent to the ſecond Section of this chapter, I ſpoke at large

(as

(as is apparent) of every ſort, both of fierie and waterie Meteors: now therefore (if you pleaſe) you may go along with me to thoſe which are called aierie; wherein I purpoſe to ſpeak concerning the generation of windes, ſhewing upon what cauſes they depend. And by the way I would have you obſerve a packet of opinions which have been poſted to and fro as if they were pertinent to the purpoſe.

1. For ſome in the firſt place may be found, who immediately referre the motion and generation of windes unto God, becauſe the windes are ſaid to be brought out of his treaſures, as you may reade, Pſal. 135. 7. And in the 4. of Amos, at the 13 verſe, *He formeth the mountains, and createth the windes.* The firſt opinion.

To which I make this anſwer, that they who ſend us, concerning theſe and the like things, to God and to his decree in nature, or to the might of his power, have ſaid indeed that which is primarily true, but not ſhewed how it is ſecondarily effected. For although concerning ſome things extraordinary, the cauſe be hid; yet ſuch as be ordinary are not wrought by the firſt cauſe without an adminiſtration of the ſecond. As for example, God is not onely ſaid to bring the windes out of his [a] treaſures, but alſo to ſend forth the lightnings with the rain; as it is in the forenamed Pſalme: yet neverthleſſe the Prophet Jeremie ſheweth that theſe are wrought, not immediately, but mediately, by the help of ſecondary cauſes; as in Jer. 10. 13. *He cauſeth the vapours to aſcend from the ends of the earth.* By which it appeareth that he maketh not the rain without them, but of them; thoſe aſcending vapours being the matter of rain. And again; * *The day is thine, and the night is thine: thou haſt made ſummer and winter;* as in the Pſalmiſt. Yet neverthleſſe we know that the day and the night, together with the ſeaſons of the yeare, are not made but by the motion of the ſunne and

Anſwer.

a *Dum dicit, Deum producere ventos de theſauris ſuis, hoc tantùm innuit, ventorum materiam & exhalationem in terra tanquam theſauro incluſam eſſe, unde Deus ventos producit per cauſas intermedias & naturales, quæ ſunt calor ſolis & terræ. Havenreut.*

Pſal. 74. 17. 18.

and ſtarres; as it is in Geneſis 1. 14.

A ſecond opinion.

2. Wherefore in the ſecond place, ſeeing God worketh theſe things by means, the motion of the windes is attributed to the Angels, it being ſuppoſed that inſtrumentally they perform Gods will in this, cauſing the windes to blow, &c. Whereupon the Pſalmiſt is again alledged, ſhewing that the * clouds are Gods divine chariot; the horſes carrying it are the † windes; the coachmen are the * Angels, whom God calleth Cherubims; and his darts are hot † thunder-bolts, which he caſteth from the clouds. And furthermore, that Angels cauſe the windes, S. John declares it alſo, Revel. 7. 1. affirming that he ſaw foure Angels ſtanding upon the foure corners of the earth, holding the windes that they ſhould not blow. The Angels therefore move the windes.

* Pſal. 104. 3.
† *Ibid.*
* Pſal. 18. 10.
† *Ibid.* verſ. 14.

Anſwer.

To which again it is anſwered, that neither is this opinion ſound.

For firſt, concerning the Pſalmiſt, what doth that Prophet but in a figurative ſpeech expreſſe Gods ſwiftneſſe in coming to ſuccour him?

And ſecondly, for the foure Angels ſtanding upon the foure corners of the earth to keep the windes from blowing, I marvell that it can be taken ſo neare a literall ſenſe.

Napeir, in his Comment upon the Revelation, confeſſeth that the Jews indeed have certain books of antiquitie, dividing the government of the earth among foure great Angels, and under them they imagine to be many inferiour ones. But he withall acknowledgeth that they are aſſertions more curious then certain. And therefore he underſtandeth by theſe foure Angels, the good Angels of God; and the foure windes he expoundeth to be the ſpirits of Satan, and executours of vengeance. For in a figurative ſenſe, theſe and the like things are to be taken.

Beſides,

Beſides, the irregularitie of the windes, turning ſometimes three or foure times in a day, doth ſufficiently ſhew (as it is elſewhere witneſſed by another authour) that they are not immediately governed by any intellectuall ſubſtance; for in their actions you may obſerve a greater conſtancie, and more certain law.

3. Wherefore leaving this opinion alſo, I come to a third; wherein I finde that winde is nothing elſe but the flowing and reflowing, or motion of the aire, having no other materiall ſubſtance then the very thin aire it ſelf. A third opinion.

To which it may be anſwered, that this opinion, although better then the former, cannot float farre before it ſink, and will therefore drown him in an errour who ſticketh to it. For, as [b] *Ariſtotle* teſtifieth, we fall into other abſurdities upon the admittance of this tenent; (or elſe we diſſent from them who maintained it of old) imagining thus, that when the aire is compelled to move, we have winde; when it ſtandeth ſtill, it is thickened into a cloud; when it raineth, it is condenſed into water: all which is very idle. Anſwer.

[b] *Meteor. lib.* 2. *cap.* 13.

For furthermore, if the winde were nothing elſe but the motion of the aire, then it would neceſſarily follow that all and every aire moved ſhould be winde: but all and every moved aire is not winde: therefore winde is more then the moved aire. Winde is more then the motion of the aire.

Havenreuter, in his Comment upon *Ariſtotles* Meteors, proveth the aſſumption by this ſimilitude. Even as every flowing water (ſaith he) although there be great plentie of it, cannot be called a river, but that onely which ariſeth from a fountain, or hath ſome certain beginning of fluxion: ſo alſo, not all and every aire, moved by one kinde of means or other, can be called winde, but that onely which is as it were derived from ſome beginning or fountain. As for example, the aire which is turned about by the heavens, is moved, yet it was never call-

ed winde. And again, in a bloudie bulleting fight, the aire is forced and ſtirred by the thundring ſound of gunnes, and yet no winde is raiſed by it.

Beſides, make winde to be nothing elſe but the moving of the aire, and then there can be no ſufficient reaſon given why we ſhould have greater plentie of windes at one time then at another; nor yet why they ſhould blow from this point or corner, rather then from that. In which regard they alſo are confuted who ſuppoſe that the motion of the heavens moveth the windes: for if they were moved by the heavens, then the winde muſt blow alwayes one way, and never turn into a differing corner. But it followeth.

Another opinion.

Another opinion (and this is the laſt that I mean to mention) maintaineth that the windes do actually reſide ſomewhere, and are ſhut up as in a priſon, from whence they have ſometimes libertie for a while, but at length they retire, & betake themſelves to their dennes or cave again. This the Poets aimed at, when they* made *Æolus* the God of the windes, affirming that he kept them cloſe, or let them looſe at his pleaſure. Whereupon *Homer* may be remembred, who brings in *Ulyſſes* ſpeaking of the ſaid *Æolus* thus:——*But he gave me* (ſaith he) *an hollow bottle or leather bag, made of the skin of a nine-yeare-old ox, in which he bound the blaſts of the ſtormie tempeſtuous windes.* Or as [c] *Ovid* ſpeaks of *Jupiter*, who had a commanding power over all the other Gods;

* The reaſon of which fiction was, becauſe the clouds and miſts riſing about the ſeven Æolian Iſlands, of which he was king, did alwayes portend great ſtore of windes.

c. *Metamor. lib.* 1.

Protinus Æoliis Aquilonem claudit in antris,
Emittítque Notum; madidis Notus evolat alis.

He forthwith ſhut the Northern winde
within Æolus den;
And looſe he lets the Southern winde,
which flies with moiſtned pen.

Now this laſt opinion, although the Poets have turned it into a fiction, is not ſo bad as it ſeems to be. For take all

all *cum grano ſalis*, as is ſaid, and then it will appeare that the winde is in ſome ſort ſhut as within a den; and although not looſed by *Æolus*, yet by *Helios*: for *Helios* (which is the Sunne) doth indeed help to let it looſe from out the bowels of the earth; drawing it into the aire, and above the ground; where we may feel it fanne our faces: ſometimes churliſhly, as if it were angry; ſometimes gently, as if it were pleaſed. But of the ſeverall kindes of blaſts I ſhall ſpeak afterwards; and therefore let them now reſt untill I meet them.

Artic. 2.
What winde is; upon what cauſes it dependeth; and how it is moved.

FRom the falſehood of the former opinions I come to declare the truth concerning the generation of windes; affirming that windes are generated by vertue of the Sunne, which cauſeth an hot and drie Exhalation to be evaporated, or aſpired out of the earth. Unto which [a] ſome adde the power and operation of certain ſubterranean fires, which are as an antecedent cauſe, or *cauſa* προηγουμένη of the ſaid windie exhalations: yet ſo, as being come neare to the *ſuperficies* of the earth, the Sunne provokes or ſtirres them up to come abroad, being therein *cauſa* προκαταρκτική, or the moving cauſe: for the Sunne, as a porter, rarifies the *ſuperficies* of the earth, and thereby openeth the pores and paſſages of it, through which the matter of winde comes forth, and flyeth ſidelong over the face of the earth. And if at any time it happen that theſe exhalations can have no way made them, but are kept cloſe priſoners; they then (by ſtriving to get out) ſhake the earth: which makes ſad mortals alwayes fear, ſometimes ſuffer, and not ſeldome wonder.

The cauſe and effects of an earthquake.

Wherefore, winde may be thus defined; namely that it

[a] *Iſid. de orig. font. cap. 3.*

The definition of winde.

it is a certain plentie of hot and drie exhalations void of pinguid matter; which being partly aſpired, and partly exhaled out of the earth, are driven about it, leſt the aire ſhould be corrupted.

b *Met. lib.* 2. *cap.* 4.

The matter then, we ſee, muſt be an exhalation. The quantitie of it muſt be copious: and ſo [b] *Ariſtotle* alſo witneſſeth; affirming that in the generation of windes, there is a concourſe of many exhalations, by little and little begetting a large maſſe of matter. The qualitie of which matter muſt be hot and drie, not mixed with any fattie ſubſtance: for if it were of a pinguid nature, then it would be enflamed like lightning; ſeeing lightning is an hot and drie exhalation and like unto this, ſave onely that it containeth great plentie of fattie matter, ſuch as is not amongſt the matter of winde.

Why it uſeth to rain when the winde is down.

Unto which adde this obſervation, that a meer earthie exhalation is never the whole matter of winde. For it draweth up many mixed vapours with it, as may be ſeen if we call to minde the ſtorms and ſhowers which often happen upon the allaying of a winde. For that part of the exhalation which is more moiſt and vaporous then the reſt, is thickened and condenſed into a rainie cloud, whileſt the other is either drawn high into the upper Region, or elſe quite waſted, diſperſed and conſumed.

The aire moved augments the winde.

Alſo know that the aire may increaſe and augment the exhalation after the motion is begun, and ſo the blaſt ſeemeth the greater. For the exhalation cannot but drive ſome part of the aire before it; then followeth other ſome after it, leſt there ſhould be *vacuum*.

And furthermore, in that I aſſent to a twofold efficient cauſe of winde, viz. the beams of the ſunne attracting, and alſo ſome certain ſubterranean fires expelling, it is not without reaſon: for it evidently appeareth, when the ſunne hath either little or no force to draw

up an exhalation, that then we have often great blaſts; as thoſe Northern windes in winter, and boiſterous blaſts, which happen in the night above our Horizon, when the ſunne is under it. And unto this may be alſo added the ſecret influence of the Planets, who being in ſuch or ſuch a poſition do powerfully cauſe the earth to afford the aire great ſtore of windie exhalations. As for example: the aſpect of *Jupiter* (eſpecially his conjunction) with the ſunne, cauſeth great windes; producing alſo (as they may be placed) thunder and hail, as well as fair weather. And as for *Mercury*, if he be aſpected either with the ſunne, moon, or *Jupiter*, in *Gemini*, *Libra*, or *Aquarius*, it is evermore an infallible ſigne of winde; unleſſe there be ſome other particular and more powerfull influence to croſſe it: for, as ſome have found it, generall influences may hinder thoſe which are particular.

How the windes are moved, and by what.

But come now to the motion of windes. I ſaid before in their definition, that they were driven about the earth: and now it may be demanded how that motion is, and from whence it proceedeth.

Their motion is a laterall or ſidelong motion, cauſed through the aſpiring of the exhalation and detruſion of the aire. For the exhalation is hot and drie, and drawn up by the attractive power of the ſunne & other ſtarres; whereupon, whileſt it tendeth towards the middle Region of the aire, it is beaten down again through the coldneſſe and denſitie of that place: and ſo, with a refracted and diſjoynted force, it is driven hither and thither, and not ſuffered to fly up, nor willing to fall down in reſpect of the great levitie in it: and having as it were divided the contention between both (viz. the cold of the aire, and heat of the exhalation) neither overcoming other; it flyeth, not directly up, nor directly down, but laterally or obliquely: for it is [c] held to be a kinde of Axiome, that thoſe

c *Havenreut. de Met. lib. 2. cap. 4.*

thoſe things which are moved partly by force, and partly naturally, move themſelves obliquely. By which reaſon lightning alſo, ſhooting ſtarres, and the like Meteors, fly not directly down, nor up; but ſidelong, as the winde: unleſſe it be, that when they conſiſt of Heterogenean parts,or parts of a divers kinde (which ſome alſo attribute to the matter of windes) they then, through the ſtrife of thoſe their elevating and depreſſing parts, have a tranſverſe motion as before.

Where the motion of the winde beginneth.

The place from whence this motion of the windes beginneth, is from above.

Firſt, becauſe the motion muſt neceſſarily begin from that place whither the exhalation is carried, as is ſeen in a vapour turned to rain.

Secondly, becauſe all thoſe things which have great force, there, where they have their greateſt force, are not farre from their head or beginning of motion: but the windes have their greateſt force in places up on high: therefore there they begin their motion, as *Havenreuter* proveth.

Thirdly, know that the redneſſe of the skie, and all other viſible ſignes of winde, do declare that ſome ſpirits or windie breathings are above, which in ſhort time will be turned into blaſts. For redneſſe is a token of the aduſtion of exhalations in the aire: and the breaking of a circle about the moon from ſome one ſide or other, doth alſo ſhew the winde that is above, but not as yet come down unto us. The like alſo doth the ſwift motion of a ſingle cloud in a cleare skie when we feel no blaſts below.

Beſides, the hot and drie exhalation we know is carried firſt upright, and cannot therefore move obliquely untill it be encountered: wherefore the motion beginneth in the aire above,and not in places here below.

Particular windes.

And yet ſome imagine that certain particular windes, which

which are known but onely in ſome countreys, have their immediate motion from out the caverns of the earth, without any aſcent into the skie: and this they prove, becauſe the blaſt bloweth not farre, but is like the winde that cometh out of a pair of bellows, ſtrong neare the coming forth; but farre off,is not perceived.

Why the winde bloweth not alwayes one way.

Upon thought of which let it alſo be known, that the blowing of the winde ſometimes one way and ſometimes another way, dependeth upon no other cauſe then upon the ſituation of the place from whence the exhalation ariſeth: and that it is ſometimes ſtirred up one where, ſometimes another where, proceedeth from the operation of the heavens.

Oppoſite windes.

Alſo know, that windes diametrally oppoſite cannot blow together under one and the ſame Horizon with a continued blaſt. For if they be of equall ſtrength, the one will be as powerfull as the other, and ſo not one give place to either. Or if their forces be unequall, then the one will overcome the other, and ſo the conquered muſt upon neceſſitie give place to the conquerour, and rather joyn unwilling forces with him, then be againſt him.

Oblique windes.

Yet neverthleſſe, if they be obliquely contrary, they may blow together: and by how much they are the more oblique, by ſo much they ſtirre up the greater ſtrivings and tempeſtuous blaſts.

Whisking windes.

But if the exhalation be little, tenuous or thin, then we have onely a pleaſant whisking winde, ſuch as may be called *aura*, by which the aire is gently moved.

The matter of winde not obvious to the ſight.

Alſo know, that it is as poſſible to ſee the winde as the aire, their ſubſtances being too tenuous to be perceived; unleſſe in a ſtorm-winde, whoſe matter is an exhalation ſo thick that it darkens the aire: of which more ſhall be ſpoken afterwards; as alſo of whirlwindes, and the like.

Laſt of all (as it is obſerved, and found by experience)

the[d] generall profit of winde, by the unſpeakable wiſdome of the eternall God, is wonderfull great unto his creatures. For beſides the alteration of the weather and change of ſeaſons, from drineſſe to rain, from rain to drineſſe, from cold to heat, from heat to cold with froſt and ſnow, which all are neceſſary; there is yet an univerſall commoditie that riſeth by the onely moving of the aire: which were it not continually moved and ſtirred, would ſoon putrifie, and being putrified would be a deadly poiſon and infection to all that breathe upon the earth. Wherefore, although we know not the particular place from whence it is raiſed, or where it is laid down, as[e] Chriſt meaneth, John the third: yet it teacheth the admired providence of the Almightie; inſomuch that we may worthily crie out with the * Pſalmiſt, and ſay, *Oh Lord how manifold are thy works! in wiſdome thou haſt made them all.*

d Fulk.

e *Iſte locus vult, quod ventus ſenſibus deprehendi nequeat; & certus locus, ubi ventus flare incipiat & deſinat, notari non poſſit: vis enim ejus tantùm ſentiatur. Havenreut.*

* Pſal. 104. 24.

Artic. 3.

Of the diviſion of windes, and of their names and number.

THe Ancients (as[a] *Plinie* witneſſeth) obſerved onely foure windes, Eaſt, Weſt, North, and South: but the following ages added eight; making the whole number to be twelve: Foure whereof were principall, and called *Cardinall* windes; becauſe they blew *à quatuor mundi cardinibus*, from the foure quarters of the world: The other eight they called *Laterall*; becauſe they were (as it were) ſide companions with the former foure.

a *Plin. Lib.* 2. *cap.* 47.

The Cardinall were called by theſe names	1. *Solanus, Subſolanus*, or the Eaſt winde.
	2. *Notus, Auſter*, or the South winde.
	3. *Zephyrus, Favonius*, or the Weſt winde.
	4. *Aquilo, Septentrio*, or the North winde.

And again, the laterall were called by theſe names that follow, and thus placed from the Cardinall.

As firſt, the Eaſt hath on the Southern ſide *Eurus*, or *Vulturnus:*

Vulturnus: and on the Northern ſide *Cœcias*, or *Helleſpontus.*

Secondly, the South winde hath on the Eaſt ſide *Phœnix* or *Euronotus:* and on the Weſt ſide *Lybonotus*, or *Auſtro-Africus*; ſo called becauſe it declineth from the South ſomething towards Africa.

Thirdly, the Weſt hath on the South ſide *Lybs*, or *Africus*; ſo called from Lybia and Africa, the Regions from whence they proceed: and on the North ſide there is *Corus* or *Caurus*, called alſo [b] *Japix*, and *Olympias*; becauſe it bloweth from the mountain *Olympus*.

Fourthly, the North hath on the Weſt ſide *Cyrcius*, called alſo *Thraſchias*, from θράπτω, *converto*, becauſe it uſeth to overturn many things with it. The Spaniards call it [c] *Gallicus*, becauſe it is obſerved to blow from the coaſts of new *Gallicia*, a Mexicanian province. And on the Eaſt ſide of the North point there is bluſtering *Boreas*, which is a bellowing winde, blowing with a loud hollow ſound; and is therefore derived by *Aulus Gellius* in his [d] Attick nights, ἀπὸ τοῦ βοᾶν καὶ ῥεῖν. This diviſion *Ariſtotle* alſo aſſenteth unto, making three windes in every quarter; as in the ſecond book of his Meteors, at the ſixth chapter, may be ſeen.

b *Origen. de effect. cap.* 5.

c *Ibid.*

d *Lib.* 2. *cap.* 22.

But the mariners make 20 more beſides theſe: inſomuch that the whole circumference of the Horizon is divided into two and thirtie equall parts, which they call and diſtinguiſh by ſeverall names. And now obſerve in this diviſion, that there be foure Cardinall windes, as before: foure middle windes, which are juſt in the middeſt between each Cardine: eight laterall, already mentioned: and ſixteen collaterall: making, in the whole ſumme, the aforeſaid number of two and thirtie.

The mariners reckon 32 windes

Know therefore that the Cardinall, and middle windes, are properly the principall: the other being leſſe principall and ſubordinate: divided therefore

into laterall and collaterall; as hath been mentioned.

And as for thoſe middle ones, they be ſuch as we call South-weſt, South-eaſt, North-weſt, and North-eaſt windes. *Notolybicus* is the South-weſt winde; and *Notapeliotes* the South-eaſt. *Borrholybicus* is the North-weſt winde; and *Borrhapeliotes* the North-eaſt.

The reſt, being ſixteen in number, and collaterall, have their places, one between each of the other: and ſo the circumference is divided into 32 parts, as before I ſhewed. Now the names of theſe ſixteen are borrowed from thoſe lateralls with whom they have the greateſt neighbourhood, by[f] adding *Meſo* and *Upo* to them. For *Meſo* comes from μέσος, *medius*; becauſe it is in the middle between a principall and a laterall winde: and *Upo* comes from ὑπὸ, *ſub*; becauſe it is as it were ſubject to that laterall winde next unto which it is placed, and from whence it taketh the name. As for example: *Eurus* is a laterall winde, a little from the Eaſt towards the South: and this hath on each ſide of it one collaterall. That which is between *Notapeliotes*, or the South-eaſt winde and it, is called *Mes'eurus*, being middle between a principall and a laterall. But that which is between the Eaſt and it, is called *Up'eurus*, as being ſubject unto *Eurus*. And by obſerving this order you may give names unto all the reſt: for *Meſo* and *Upo* will compound them.

Yet neverthеleſſe ordinarily the mariners name them thus. As *North, North and by Weſt, North North Weſt, North Weſt and by North, North Weſt, North Weſt and by Weſt, Weſt North Weſt, Weſt and by North, Weſt. Weſt and by South, Weſt South Weſt, South Weſt and by Weſt, South Weſt, South Weſt and by South, South South Weſt, South and by Weſt, South. South and by Eaſt, South South Eaſt, South Eaſt and by South, South Eaſt. South Eaſt and by Eaſt, Eaſt South Eaſt, Eaſt and by South. Eaſt. Eaſt and by North, Eaſt North Eaſt, North Eaſt and by Eaſt,*

[f] Orig. Ephem. lib. de effect. cap. 6.

Eaſt, North Eaſt; North Eaſt and by North, North North Eaſt, North and by Eaſt. And then *North* again, as in the beginning.

Artic. 4.

The nature and qualitie of the windes.

IT may well appeare by that which already hath been written concerning the generation of windes, that every winde in it ſelf, or in reſpect of the matter cauſing it, is of an hot and drie qualitie. If therefore, blowing from any quarter, we finde it other, it is by accident, and not through any inherent propertie: for windes do evermore participate of the nature of that place by which they paſſe: If by ſnowie mountains, then bring they with them the cold of thoſe mountains; if by marſhes, contagion; if by woods, their blaſt is broken; if by ſandie plains, they are warm; if by moiſt watry places, they are wet.

And therefore for particular windes, the [a] *Panormi* in *Sicil* are extream hot; for before they pierce thither, they ſcoure through the plains of *Sicil*; and taking heat from the ſands, they carrie it into the citie. The South winde at *Genua* is cold, becauſe it paſſeth the ſea, and taketh coldneſſe thereof without touching the land before it arive. But the North winde which bloweth through *France* (ſaith [b] one) cometh from the ſea, and taking ſome meaſure of heat by the ſaltneſſe thereof, and finding no mountains covered with ice or ſnow in his paſſage, augmenteth his heat by paſſing over the fields of *Normandie, Champaigne*, the iſle of *France*, and other provinces, even to the hills of *Auvergne*: which being moderately heated by the South winde on the one ſide, and the North winde on the other, bringeth forth every where excellent paſtures, and feedings for cattell

a Windes blowing into the haven and famous citie of *Panormus*, or *Palermo* in *Sicilie*.

b In a book called a generall deſcription of the world.

and ſheep, beſides divers ſorts of medicinable plants and moſt perfect ſimples. Alſo in [c] ſome places it is found that the Eaſtern winde moiſteneth, and the Weſtern winde bringeth drought: and in other ſome the Weſtern moiſteneth, and the other drieth. So that it is poſſible for one and the ſame winde to have a divers qualitie; although not in it ſelf, yet by accident; as at the firſt was mentioned.

c *Origan. Ephem. de effect. cap. 5.*

Their qualities according as they commonly blow.

Yet neverthelesſe generally, and in moſt places, the North, with his aſſociates, is cold and drie: the South, with his companions, is warm and moiſt: and the Eaſt, with his adherents, is farre more drie then the Weſtern and his neare neighbour windes.

Norths qualitie.

The reaſons whereof may be. Firſt, for the North, becauſe it bloweth over many ſnowie mountains, and ariſeth from a climate which hath little neighbourhood with the ſunne, where the vapours be few, and the exhalations many that ariſe out of ſundry iſlands by the way. Unto which alſo adde, becauſe the exhalation paſſeth not farre before it come at us, that therefore it ſeldome bringeth rain: for the exhalation hath not time enough to ſpend the drieſt portion of it, ſo as the South winde doth; who paſſeth both over more waterie places, and alſo cometh further before we feel it.

Souths qualitie.

Secondly, for the South winde, it cometh over the Mediterranean ſea, out of which the ſunne begets abundance of waterie vapours, which mix themſelves with the windes, cauſing them thereupon to be the blowers in of rain. And as for their heat, it is becauſe they blow from the Equator where heat is moſt predominant. Alſo know that a long and gentle South winde may ſometimes cauſe cleareneſſe and fair weather, moſt commonly in the ſummer ſeaſon, becauſe it is by nature hot; and therefore blowing for a certain ſpace, it ſo warmeth the aire, that the vapours which otherwiſe would pro-

duce

duce rain, are not ſuffered to be knit, but are attenuated and made ſo thin that they come to nothing; or being any thing, they prove onely barren clouds, affording little rain.

Eaſts qualitie.

Thirdly, the Eaſt winde is found to be the drieſt, becauſe it cometh over a great continent of land lying towards the Eaſt, out of which many drie and earthie exhalations are drawn. In winter theſe windes are very cold and freezing; but in ſummer they are pleaſantly warm, but healthfull: and if at any time they blow up rain (which is not ordinary) they then continue it by the ſpace of a whole day; even as the like alſo ſometimes happeneth from the North. The reaſon of which I take to be, becauſe (perhaps) their lateralls, not being abſolutely of the ſame qualitie, may ariſe together with them, and ſo bring rain; eſpecially, if at the ſame time there be any other working in nature apt to moiſten the skie with vapours. For it is affirmed that *Eurus* on the one ſide, and *Cœcias* on the other ſide, being two laterall windes pertinent to the Eaſt, do naturally raiſe clouds, and often turn them into rain; as do alſo *Upocœcias*, and *Mes'eurus*, their collateralls. And ſo alſo *Cyrcius* may do, and *Borrholybicus*, being on the Weſt ſide of the North, if either of them happen to ariſe and joyn, although but weakly, with the Northern blaſt. For in their own ſole blowings they beget both ſnow and hail; either of which may fall down in drops of rain, when the mixture of qualities is found to be divers.

Why the Eaſt and North windes ſometimes bring rain for a whole day.

Weſt windes qualitie.

Fourthly, the Weſtern winde is farre more moiſt then the Eaſt, becauſe it paſſeth over the great ocean of the Atlantick ſea, which muſt needs caſt out many waterie and moiſt vapours, and they cannot but beget rain and ſhowers. It is ſaid alſo to be of a cold temper; but ſurely not of an abſolute coldneſſe: for it is found by experience that a direct *Zephyrus* or *Favonius*, with their collateralls,

collateralls, *Meſocorus*, and *Up'africus*, are warm and pleaſant, bringing ſometimes hot ſhowers, ſometimes warm and cleare weather. And therefore it is determined by certain authours, that this winde may blow from a cold place, and yet bring heat. For although (in regard of the place over which it cometh) it be cold; yet in reſpect of the time when it uſually bloweth, it is hot. Which [d] *Horace* alſo pointed at, ſaying,

d *Lib. 1. carm. od. 4.*

> *Solvitur acris hyems gratâ vice veris & Favoni.*
> The winter ſharp is looſed by the kinde
> Return of Spring, and of the Weſtern winde.

Or will you heare what others ſay? *Lemnius* (as *Origanus* relateth) affirmeth that this Weſtern winde and his collateralls are of a changing temper. For although in the beginning of the Spring they be pleaſing and gentle, and are found to recreate and cheriſh all things, ſeeing they are warmed by the moderate heat of the ſunne, which makes them bring out the beautie of trees, and flowers, to the view of the world; and alſo cauſeth the bloud and good humours to appeare, which in winter lay hid, as if they were not; caſting away alſo the clouds of the minde, and begetting jocundneſſe in the heart: yet neverthleſſe, Autumne ending, and the circuit of the yeare enclining to Winter, the foreſaid windes do blow unkindely, ſtriking the ſea and land with many a tempeſtuous blaſt, and unwiſhed breathings.

The effects of a long-continuing winde, at certain ſeaſons.

Moreover, this alſo may be obſerved, that the long continuance of the windes in any of theſe quarters, produceth theſe and the like effects.

As firſt, the Eaſt winde breedeth in cholerick bodies ſharp fevers, raging madneſſe, and perilous apoſtumations.

Secondly, the South winde breedeth corrupt humours, and in hot bodies cramps, giddineſſe in the head, or the falling ſickneſſe, peſtilence and cruel fevers, viz. when

when they blow long in the winter. This is held to be the moſt unwholeſome winde.

Thirdly, the Weſt winde breedeth phlegme in moiſt bodies; it procureth ſleep, cauſeth apoplexies, and the like; and is never ſo churliſh as when winter begins to approach.

And laſt of all, the North winde is good againſt the peſtilence; and yet in cold bodies it breedeth pluriſies, coughs, gouts, and (in ſome) ſquincies and ſore throats: but yet of all windes it is held to be the wholeſomeſt, although it be ſharp in our winter moneths.

And this alſo note, that a continuall ſtill ſummer is a ſigne of plague or earthquake: for a ſtanding aire putrifieth, and an encloſed winde ſhaketh the ground.

A ſigne of plague and earthquake.

Artic. 5.

Of whirlwindes, ſtorm-windes, and fired whirlwindes.

A Whirlwinde, is a winde breaking out of a cloud, rowling or winding round about: which may be cauſed two manner of wayes.

Firſt, when two or more contrary windes, blowing from divers places, meet together.

Secondly, when the matter of winde, being an hot and drie exhalation, breaketh out of a cloud in divers parts of it, coming through the ſaid holes with more then an ordinary violence. Or rather thus; Imagine a windie exhalation burſting out of a cloud, to be ſo driven, that by the way it happeneth to be pent between two clouds on either ſide of it; againſt which, beating it ſelf, and finding a repercuſſion, it is forced to turn and whirl about; even as we ſee in the ſtreets of cities when the winde is beaten from two walls, and meeteth in the middeſt of the ſtreet: for then there is made a little whirl-puffe, which whisking round about taketh up the duſt or ſtraws and bloweth them about, as doth the great

and fearfull whirlwinde it ſelf; which hath brought not onely amazement and terrour to mortalls, but alſo much harm and miſchief. [a] *Plinie* is perſwaded that vineger thrown into one of theſe blaſts will break it, becauſe vineger is of a cold qualitie, and the exhalation hot: and therefore the one is as it were quelled and quenched by the other. The Greeks call a whirlwinde * τύφων; the Latiniſts *turbo*, or *vortex*.

a *Lib. 2. cap.* 48.

Typhon.

* ἀπὸ τοῦ τύπτειν, *quod eſt verberare.*

Alſo a ſudden ſtorm-winde is called by the Greeks, ἐκνεφίας; and by the Latines, *procella:* and this happeneth, either when a windie exhalation is thrown down, and encompaſſed in a thin courſe of clouds newly overcaſt, or elſe when a windie exhalation is come to an extraordinary thickneſſe, and violently moved out of a cloud, to the darkening of the aire, without inflammation or burning: for when it burneth they call it πρήστηρ, ἀ πίμπρημι *incendo*, to burn, or ſet on fire. And this laſt is that which we call a fired whirlwinde, being an exhaled blaſt ſet on fire either by an *Antiperiſtaſis*, by repercuſſion, or violent detruſion from the cloud wherein it was encloſed; for it is made apt to be fired in regard that it conſiſteth of an exhalation which hath more fattie ſubſtance in it then other windes which burn not: And know that it differeth from lightning chiefly in theſe reſpects: firſt, becauſe lightning conſiſteth of a more ſubtil and thin matter: for although a fired whirlwinde have a more thin ſpirit or blaſt then a whirlwinde, or a ſtormie winde; yet it is not ſo tenuous as the ſpirit of *fulmen*, or lightning. Secondly, becauſe lightning is more flamie and leſſe breathie; the one having more windie ſpirits in it then the other.

Ecnephias.

Preſter.

The concluſion of this dayes work.

A conclusion repeating the ſumme of this dayes work.

AND thus at the laſt I have let you take a view with me of what is pertinent to this dayes work. We have

have ſeen (good reader) the framing of the out-ſpread Firmament, with the lifting up of the waters over it: we have examined the nature of the heavens, and ſcarce found them of a quint-eſſence: we have ſearched what heavens they were which Moſes meant when he ſaid, *God called the firmament Heavens*. From thence we proceeded to the ſeverall regions of the aire, examining their temperatures and qualities; and thereupon we fell into an ample conſideration of ſuch appearances as are uſually ſeen in any of thoſe Regions; diſcourſing at large both of fierie, waterie, and aierie Meteors.

And this being all which this day affordeth, I may here make an end, and ſay

That eve and morn conclude the ſecond day,
And in his work God findeth no decay.

CHAP. VI.

Wherein is contained a ſurvey of the third dayes work; together with ſuch things as are pertinent to it.

Sect. 1.

Shewing into how many main parts the buſineſſe of this day may be diſtinguiſhed.

BEing come from the ſecond to the third dayes work, I cannot ſay with [a] *Virgil* now, *Ille ego qui quondam gracili modulatus avenâ:* But rather on the contrary,

Ille ego qui ſuperis volitabam nuper in oris,
Nunc humilis ſequor arva ſoli, nunc tenuia preſſo
Ore loquor——

[a] Æneid. lib. 1.

Becauſe in the former day, the work belonging to it, compelled my winged pen to ſoar aloft, not ſuffering her to come unto the ground till now. For ſhe was to walk above the Firmament, and view the out-ſpread buildings laid in the flowing waters: then through the Regions of the liquid aire ſhe was to trace a path; which finiſhed, ſhe muſt be content to frame her ſelf unto a lower pitch, before any leave be granted to aſcend again. And indeed I think it is what both ſhe and I deſired; for we were long detained there.

And now, having both of us obtained our wiſhes, we finde that Gods inſpired pen-man, holy Moſes, ſo ſetteth down the admired work of his Almighty maker,

done

done on this third day of the world, that into three main parts it may be ſevered: for by viewing the words which he hath written of it, the ſame will be apparent. *And God* (ſaith he) *ſaid, Let the waters under the heaven be gathered together unto one place, and let the drie-land appeare: and it was ſo.*

And God called the drie-land Earth, and the gathering together of the waters called he Seas: and God ſaw that it was good.

And God ſaid, Let the earth bring forth graſſe, the herb yeelding ſeed, and the fruit-tree yeelding fruit after his kinde, whoſe ſeed is in it ſelf, upon the earth: and it was ſo.

And the earth brought forth graſſe, and herb yeelding ſeed after his kinde; and the tree yeelding fruit, whoſe ſeed was in it ſelf, after his kinde: and God ſaw that it was good.

And the evening and the morning were the third day.

This is the ſumme of all; which (as before was ſaid) conſiſteth of three ſeverall parts.

The firſt whereof concerneth the *gathering together of the waters*, in theſe words, *And God ſaid, Let the waters under heaven be gathered together unto one place.*

The ſecond concerneth the *drying of the ground*, in theſe words, *And let the drie-land appeare.*

The third is pertinent to the *ſprouting and ſpringing of the earth*, in theſe words, *And God ſaid, Let the earth bring forth graſſe, the herb yeelding ſeed, and the fruit-tree yeelding fruit after his kinde, &c.*

All which in their orders are ſeverally to be diſcuſſed, together with ſuch other things as are pertinent to the ſaid diviſion.

And concerning the two firſt, obſerve that God beſtowes as it were ſirnames on them; calling the gathering together of the waters, Seas: and the drie-land he calleth Earth.

Sect. 2.

Of the gathering together of the waters, which God called Seas.

VVAter and earth are the two loweſt elements; and this was that day which brought them to perfection: for untill now they were confuſed; becauſe their matter, although not quite void of form, received at this time a better form of due diſtinction and more comely ornament. The informitie was expreſſed before, when Moſes ſaid that the earth was void and inviſible, becauſe covered with waters: but the formitie is then expected and declared when the waters are gathered, and the drie-land made apparent.

It is a wonder (ſure) to think what a confuſed tyrannie the waters made by their effuſion; for they did rather tyrannize then orderly ſubdue or govern this inferiour mirie maſſe: wherefore it ſeemed good to the Almightie maker, firſt to divorce one from the other, before he gave them leave ſo to be joyned each to other, that both together might make one globie bodie; which (according to the beſt approved writers) is one and twentie thouſand and ſix hundred miles in compaſſe.

But concerning this gathering together of the waters, there ariſe certain queſtions, which may not altogether be forgotten.

Queſtions concerning the waters which are ſaid to be gathered together.

As firſt, it is enquired, How the waters were gathered together.

Secondly, How it can be ſaid that they were gathered to one place; ſeeing there be many ſeas, lakes, rivers, and fountains that are farre aſunder.

Thirdly, Whether they be higher then the earth.

Fourthly, Whether there be more water then earth.

Fifthly, Whether the earth be founded upon the waters.

Sixthly,

Sixthly, Why the ſeas be ſalt, and rivers freſh.

Seventhly and laſtly, What cauſeth an ebbing and flowing in the ſea, rather then in rivers.

Queſt. 1. Which ſheweth how the waters were gathered together.

Concerning the firſt of theſe queſtions, thoſe who think that there be no *Antipodes*, ſuppoſed that the waters did runne together and cover the other part of the earth which is oppoſite to this where we dwell. But the experience of skilfull navigatours and famous travellers, yea and reaſon it ſelf, doth crie againſt it.

Others imagine that it was ſome mighty winde which dried them up; or that the fervent heat of the ſunne effected it. But both think amiſſe; becauſe the drie-land (ſaith one) appearing all at once, was ſo prepared by a greater power then either of the winde or ſunne, which could not work it at once, nor ſcarcely in a long continuance of time: neither was the ſunne made untill the next day after. *Dixit igitur & factum eſt*; he ſpake the word onely, and by the power of that word it was done. For the efficient cauſe of the ſea was the onely word of God; the materiall was the waters; the formall was their gathering together; and the finall partly was, that the drie-land might appeare. *Ezekiels* * wheels were one within the compaſſe of another: and ſo was the earth, water, and aire, before the powerfull word of God commanded this their gathering: the earth within the water; the water within the aire; and the aire within the concave of the Firmament. Which if they had all for ever ſo remained, and man made as he is, the world had been no houſe for him to dwell in, neither had it been a work ſo full of never ended admiration as now it is.

* Ezek. 1. 16.

Perhaps the pores and holes of the ground were full before this gathering; yet neverthelesſe their bodies muſt be willing to be made the beds for more. That they were full, it proceedeth from the nature of the water, falling

falling downwards and filling them. That being full, they are yet made capable of more, might proceed both from a more cloſe compoſure of the not hollow parts of the earth, and alſo by making theſe waters thicker then they were before. For whileſt the not hollow parts were made more ſolid, the hollow could not chooſe but be

* Job 38. 10.

* enlarged: and whileſt the thin and vapourie waters were better thickened and condenſed, the outface of the ground could not be obſcured, but ſhew it ſelf as one releaſed from out a waterie priſon. Some adde unto this their heaping together in the high and wide ſeas, whereby it cometh to paſſe that they flow to and fro at flouds and ebbs, and do often force out water-ſprings from out the higheſt mountains: which laſt, whether it be ſo or no, ſhall be examined afterwards.

Queſt. 2. Shewing how they were gathered to one place.

The next queſtion was, how it can be ſaid that they were gathered to one place; ſeeing there be many ſeas, lakes, rivers and fountains that are farre aſunder.

It was a ſtrange conceit of him who thought that this one place unto which the waters were gathered, was ſeparate ſo from the earth that the waters by themſelves ſhould make a globe, and have their proper centre; for leaving to deſcend towards the centre of the earth, they were gathered to a centre of their own, and ſo the drie-land appeared.

* Eſay 40. 22.

But this opinion is very falſe, and worthy to be reckoned amongſt abſurdities: for (as the * Prophet Eſay writeth) the Lord is ſaid to *ſit upon the circle of the earth.* Now experience ſheweth that it is not the earth alone, but the earth and ſea together that make one globe or circle.

This one place then whither the waters were gathered, was not a place ſeparated from the earth, being in the aire or elſewhere, but was in the very body of the earth it ſelf. Neither was it one place ſtrictly taken, as it

it meant one point or angle of the earth: or, as if there were no *Antipodes*, half the earth under us was to be covered with water.

But rather it is called one place, becauſe in the whole globe of the earth, every place is either water or land: or (if not ſo) becauſe there is but one body of all the waters that are: for every part of the water is joyned unto the whole as it were with arms and legs, and veins diverſly dilated and ſtretched out. So that either under the earth, or above the earth, all the waters are joyned together: which alſo the wiſe man witneſſeth, Eccleſ. 1. 7.

But haply ſome may think, becauſe this gathering together of the waters is called Seas, that therefore the one place, unto which they were gathered, is not to be underſtood of every collection or gathering of water, but onely of the ſea.

Well, be it ſo. And if this rather then the other be the meaning of Moſes his words, it may be anſwered, that although the ſea be divers in name, yet all ſeas are ſo continued together, that one ſea is perpetually joyned with another: and thereupon the name given, is not *Sea*, but *Seas*; as in the text is manifeſt.

Yea and hereupon it alſo is, that Geographers make theſe waters come under a fourefold diviſion. For they either call this gathered water, *Oceanus*, *Mare*, *Fretum*, or *Sinus*.

1. *Oceanus*, the ocean, is that generall collection of all waters, which environeth the world on every ſide.

2. *Mare*, the ſea, is a part of the ocean, to which we cannot come but through ſome ſtrait.

3. *Fretum*, a ſtrait, is a part of the ocean reſtrained within narrow bounds, and opening a way to the ſea.

4. *Sinus*, a creek, or bay, is a ſea contained within a crooked ſhore, thruſting out (as it were) two arms to embrace the lovely preſence of it.

Object. But perhaps you will ſay that the Caſpian ſea is a ſea by it ſelf, and therefore all ſeas joyn not the one unto the other.

Anſw. To which it is anſwered, that this ſea is either as a * lake in reſpect of the contiguous or joyning ſeas; or elſe it was no ſea in the beginning of the world, but began onely at the ceaſing of the Floud,& was cauſed by the waters coming down from the Caſpian hills, ſetling themſelves in thoſe declive and bottomie places where the ſaid ſea is. *Plinie* and *Solinus* are perſwaded that it joyneth it ſelf unto other ſeas by running into the Scythian or Northern ocean through ſome occult paſſages under ground; which is not improbable. But howſoever, this we are ſure of, that the river *Volga* is joyned to it, being as another ſea, and having no leſſe then ſeventie mouthes to emptie it ſelf: which river is alſo joyned to the river *Don*, and that hath great acquaintance with the Euxine ſea. Beſides, *Volga* is not a ſtranger to [a] other waters which fall either into the Scythian or Baltick ocean; inſomuch that it may be ſaid, this Caſpian ſea is tied (as it were) with certain ſtrings to [b] three other ſeas: and ſo, not onely all waters are made one bodie, like as before I ſhewed, but (if this gathering muſt needs be referred to the ſeas) even all ſeas alſo ſhake hands, and by one means or other mutually embrace one the other.

* Dr. Fulk in his Met. *lib.* 4. faith that ſome lakes are ſo great that they bear the names of ſeas: among which he reckoneth this Caſpian ſea.

a As *Duina major*, and *Duina minor* called alſo *Onega*. Look into the maps of Ruſsia or Moſcovia.

b Viz. the Euxine, Baltick, and Scythian or Northern ſeas.

Queſt. 3. Shewing whether the waters be higher then the earth.

A third queſtion is, Whether the waters be higher then the earth. Concerning which there be authours on both ſides; ſome affirming, ſome denying.

That they be higher then the earth, it is thus affirmed.

Firſt, becauſe water is a bodie not ſo heavie as earth.

Secondly, it is obſerved by ſailers, that their ſhips flie faſter to the ſhore then from it; whereof no reaſon can be given, but the height of the water above the land.

Thirdly, to ſuch as ſtand on the ſhore, the ſea ſeemeth

to ſwell into the form of an hill, till it put a bound to their ſight.

Fourthly, it is [c] written of *Seſoſtris* King of Egypt, and after him of *Darius* King of Perſia, that they would have cut the earth and joyned *Nilus* and the Red ſea together; but finding the Red ſea higher then the land of Egypt, they gave over their enterpriſe, leſt the whole countrey ſhould be drowned.

[c] *Herodot. in Euterpe, & in lib. ſequent. Plin. lib. 6. cap.* 39.

Fifthly, the ariſing of ſprings out of the higheſt mountains doth declare it, becauſe the water cannot be forced higher then the head of the fountain oppoſite to it. As for example. Like as we ſee a ſpring that riſeth in an hill, conveyed in lead unto a lower ground, will force his waters to aſcend unto the height it beareth at the fountain: even ſo the waters which ſtand above the mountains, do force out ſprings of water, by neceſſary and naturall cauſe, out of the higheſt mountains.

Sixthly, the * Pſalmiſt doth witneſſe the ſame, affirming moreover that God Almighty *hath made the waters to ſtand on an heap, and hath ſet them a bound which they ſhall not paſſe, nor turn again to cover the earth.* And Jer. 5.22. *Fear ye not me, ſaith the Lord? will ye not tremble at my preſence, which have placed the ſand for the bound of the ſea, by a perpetuall decree that it cannot paſſe it; and though the waves thereof rage, yet can they not prevail?* Thus on the one ſide.

* *Pſal.* 104.

But notwithſtanding all this, methinks the other part (yet chooſe which you will) is moſt probable.

For firſt the water indeed is a bodie not ſo heavie as earth, yet heavie enough to deſcend, not being of an aſpiring nature, but preſſeth eagerly towards the ſame centre that a ſtone or any part of the earth coveteth: It cannot therefore poſſibly be above the earth, although not ſo heavie as earth, unleſſe there were no hollow places in the ground to receive it. But God Almighty, in

gathering them, provided lodgings for them, left they ſhould turn again and cover the earth: which alſo is inſinuated by the Hebrew word *Kava*, ſignifying to congregate or gather together; from whence the Latine word *Cavus*, hollow, may ſeem to be derived. Beſides, ſhould it be alledged that the hollow places could not be deep enough to receive them, what were this but to curtall the earths Diameter or thickneſſe? for ſuppoſe the waters ſtood above the hills before they were gathered to one place; yet know that even the Semidiameter of the earth is deeper by no few miles then the higheſt hill. Suppoſe you could imagine an hill to be above a thouſand miles high (which is impoſſible) yet the earths Semidiameter would be two thouſand, foure hundred, and above 36 miles deeper then that height. As for example; if the earth be 21600 miles in compaſſe, then the Diameter will be $6872\frac{8}{11}$ miles; and if the Diameter be $6872\frac{8}{11}$ miles, then the Semidiameter muſt be half ſo much, viz. $3436\frac{4}{11}$ miles.

Secondly, ſuppoſe it be obſerved by ſailers that their ſhips fly faſter to the ſhore then from it: this proveth not the ſea higher then the land. For know that it is no wonder to ſee a ſhip ſail more ſpeedily homewards then outwards; becauſe when it approacheth to the ſhore, it cometh with a continued motion which makes it the ſwifter: but when it goeth from the ſhore, it doth but begin its motion, and is therefore ſlower then before. This (if need were) might be proved by many plain and familiar examples.

Thirdly, ſuppoſe that the ſea ſeemeth, to ſuch as ſtand on the ſhore, to ſwell higher and higher, till it put a bound to the ſight; this rather proveth the ſphericall roundneſſe of the earth and ſea, then any thing elſe; ſhewing that both together make one globie bodie. Which, why it is perceived rather in the water then the

land, this may be a reaſon; namely becauſe the ſea, being a plain and liquid element, and ſpacious enough, doth better ſhew it then the earth, which hindereth our full view by reaſon of many woods, trees, and other fixed obſtacles which the ſight meeteth and encountreth by the way.

Fourthly, although *Seſoſtris* K. of Egypt, and after him *Darius* K. of Perſia, dared not to make a cut out of the Red ſea into *Nilus*, for fear of drowning the countrey, becauſe they ſuppoſed that the ſea lay three cubits higher then the land of Egypt: yet (as ſome report; how truely, I cannot tell) the *Ptolomies*, kings of Egypt, effected the work without any danger of inundation. But ſuppoſe they had not done it, or ſuppoſe it were granted that the Red ſea were higher then the plains of Egypt; yet it followeth not (unleſſe one ſwallow can make a ſummer) that the ſea in generall is every where higher then the earth. As for the height of the Red ſea above the land neare adjoyning to it, [d] *Ariſtotle* ſeemeth to give a reaſon, perſwading himſelf that there is ſuch a change in the univerſe, as that that which hath been ſea is ſometimes land, and that which hath been land is ſometimes ſea: and ſo he thinketh of thoſe low grounds neare the Red ſea, that they have been gained from the ſea. The like we may alſo think of many places in the Netherlands, and of that ſmall part of ſea which is between *Dover* and *Callis*; as *Verſtegan* proveth in his reſtitution of decayed antiquities, cap. 4. pag. 97.

[d] *Met.lib.1.cap.* 14.

Fifthly, ſuppoſe that certain ſprings ariſe out of the higheſt mountains, muſt the ſea therefore needs be higher then thoſe mountains? ſurely I think not. For albeit I be not of *Ariſtotles* minde, nor of their opinions who do not derive the rivers from the ſeas, nor make ſubſcription unto them who give a ſucking and an attractive po-

power to the veins of the earth; yet I finde it as a thing poſſible, although that part of the ſea which lieth oppoſite to the head of the fountain, or to the place where the water firſt breaketh out, be lower then the ground, that the ſaid water may nevertheleſſe eaſily aſcend, and not break forth untill it finde a place convenient. Now this aſcent is cauſed by the ſea, which, ſeeing it is a vaſt bodie, is very ponderous and heavie, and cannot be thruſt back by the water at the head of the fountain oppoſite to it, but rather it doth potently and ſtrenuouſly croud on the ſaid water through the hollow ports and paſſages of the earth, untill at the laſt it ſpringeth forth.

Were it ſo indeed that there were an equall weight of both waters, (I mean of the ſea-water driving, and of the ſpring-water ariſing) then the aſcent of the one could not be higher then the *ſuperficies* of the other: but ſeeing the weights are unequall (which [e] *Cardan* did not well conſider) the ſtronger and heavier muſt needs drive on the weaker and lighter, cauſing it ſometimes to aſcend even above it ſelf.

[e] *De ſubtil. lib.* 3. *pag.* 123.

Sixthly and laſtly, that which the Pſalmiſt witneſſeth concerning the ſtanding of the waters on an heap, I take to be nothing elſe but the gathering of them to one place, ſo and in ſuch a manner, that their coming together may be called Seas, and their forſaking the land be called Earth: for if one place of Scripture be expounded by another, it will appeare to be even ſo. Firſt, becauſe it is ſaid, Eccleſiaſtes 1. 7. *All the rivers go into the ſea:* but the water hath his naturall courſe downwards, and cannot be forced up, but by the heavier weight; as hath been ſhewed. Secondly, becauſe it is ſaid Pſal. 107. 23. *They go down to the ſea in ſhips: down,* as to the lower place; and not *up*, as to the higher. And for that alledged out of Jeremy, viz. *Fear ye not me? &c.* The Prophet ſpeaks there of no miraculous work againſt nature,

ture, but of the ordinary providence of God by naturall means, keeping back and bounding the ſea; as at the 24. verſe is manifeſt. For there he gives the like inſtance of the rain; which we know is not wrought by miracle, and yet it ſheweth the watchfull providence of God, preſerving the world by the naturall courſe of the creatures.

Judge then if they be not miſtaken, who would have the ſea higher then the earth.

The fourth queſtion is, Whether there be more water then earth.

Queſt. 4. Shewing whether there be more water then earth.

Now here I am perſwaded that the anſwer may be either double or doubtfull. For if we have reſpect to the known parts of the world, then I think there may be more ſea then land. But if we have reſpect to all, both known and unknown, then perhaps there may be as much land as ſea: For we ſee that in the maps of the world, the Southern parts are not known, and therefore they write *Terra Auſtralis nondum cognita:* which whether it be ſea or land, is uncertain. *Pareus,* upon Geneſis, is perſwaded that the land is more then the ſea, alledging a proof out of * Eſdras, where it is ſaid that when God commanded the waters to be gathered, he gathered them into the ſeventh part of the earth, and dried up the ſix other parts: which although it be Apocryphall in reſpect of the autoritie of the book, yet (ſaith he) it ſerves to ſhew that the waters are not more then the earth.

* 2. Eſdr.6.42.

The next queſtion is, Whether the earth be founded upon the waters.

Queſt. 5. Shewing upon what the earth is founded.

The Pſalmiſt ſeemeth to affirm it, Pſal. 24. verſe 2. For (according to the common reading) it is, *He hath founded it upon the ſeas, and prepared it upon the floods.*

To which it is anſwered, that if the earth (as it is) be the receptacle for the waters, or holdeth the waters in the concavities of it, how can it be that the waters

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are in ſtead of a foundation? Job ſaith, *He hangeth the earth upon nothing*, chap. 26. 7. If upon nothing, then not upon the waters, for they are ſomething. And again, even the Pſalmiſt alſo ſaith, *The foundation of the earth cannot be moved*, Pſal. 104. 5. If not moved, then not founded upon the waters, for they are moveable; flitting to and fro, ſometimes this way, ſometimes that way, and never ſtanding ſtill.

Wherefore when the Pſalmiſt ſaith, *The earth is founded upon the ſeas*, he meaneth that it is ſo placed above them, as that it is made fit to be a place for habitation: And ſo Expoſitours underſtand the Hebrew word *Gnal*; viz. in ſuch a ſenſe that it doth ſignifie *above*, and not *upon:* In which ſenſe, the waters that it ſuſtaineth do not hold it, but are holden by it: for they are in it *tanquam in utre*, as in a certain veſſel; and do alwayes ſtrive to come as neare the centre as is poſſible.

For concluſion then of this queſtion, thus much muſt be known; namely, that when God made the world, he made * all things in number, weight, and meaſure: inſomuch that the earth (although it be hanged upon * nothing) is ſo equally poyſed on every ſide, that it cannot but be firmly upheld; and no more fall then the ſun out of the firmament, or the ſtarres out of heaven. For hath not man ſometimes ſhewed an admired portion of skill in this or that rare work which he hath wrought, and effected by nothing elſe but onely the deep and profound rules of art? yes ſurely hath he. And if man be ſo potent as to make his skill admired, yea and by thoſe who are men as well as he; what may we think of the Maker of men, but that his art is much more then commendable, and his wiſdome much more then matchleſſe; ſo that the world, and all the parts thereof, afford nothing but matter of wonder? It is therefore an acclamation which deſerves impreſſion in the hearts of us mortall

* Wiſd. 11.22.
* Job 26. 7.

tall men; *Oh God, how manifold are thy works! in wiſdome thou haſt made them all:* And being made, his providence doth ſuſtain them.

Queſt. 6. Shewing why the ſea is ſalt, and rivers freſh.

The ſixth queſtion is concerning the ſaltneſſe of the ſea, and freſhneſſe of rivers.

Ariſtotle, in his ſecond book of Meteors, at the 3. chapter, ſetteth down (beſides his own) three opinions concerning this ſaltneſſe. One whereof is, that the waters overflowing the earth in the beginning of the world, were ſo dried up by the heat of the ſunne, that not onely the drie-land appeared, but all thoſe waters which remained (being the ſea) were ſo ſucked and robbed of their ſweet ſavour, that they could not but be ſalt.

Another opinion agreeing to that of *Plato*, who generating the ſea *ex tartaro*, or from great and deep gulfs in the earth, or (with others) drawing it through the bowels of the earth, gave occaſion to think that the water in it ſelf was ſweet, and yet became ſalt by reaſon of the divers ſavours that it met withall in the ground or veins of the earth. Which cauſe, by the [i] interpretours of *Ariſtotle*, is alſo attributed to *Anaxagoras* & *Metrodorus*, as being pleaſing to them. For as water ſtrained through aſhes is endued with a certain tart and ſalt kinde of acrimonie; ſo the ſea is made ſalt by ſome ſuch kinde of earth through which it paſſeth: which is as others have alſo thought, who ſuppoſe that the ſaltneſſe of Mineralls doth much conduce to this purpoſe.

[i] *Navarr. in Ariſt. de Met. lib. 2. cap. 3.*

A third was the opinion of *Empedocles*, who affirmed that the ſea was but the ſweat of the earth, being (as it were) roſted by the heat of the ſunne; and was therefore ſalt, becauſe all ſweat is of ſuch a ſavour.

Now theſe three opinions *Ariſtotle* endeavoured to confute by ſeverall reaſons, ſhewing other cauſes of the ſeas ſaltneſſe. And indeed had it been ſo with him that

he could have repaired unto Moſes, then had the firſt opinion been ſtruck dead more eaſily then it was; becauſe Moſes would have told him that the drying of the earth, and gathering of the waters, were one day elder then either ſunne or ſtarres.

And for the ſecond, if it be taken in a qualified ſenſe, it is not much amiſſe: for although *Ariſtotle* ſaith that if it be a true opinion, then rivers would be ſalt as well as ſeas, becauſe they runne in the veins of the earth; yet know that all and every vein is not of one and the ſame temper; as is apparent by the differing qualitie of ſpringing waters.

As for the third, it ſeemeth rather a ridiculous then philoſophicall opinion: for ſweat is but a ſmall part of that humour contained in any bodie that yeeldeth ſweat; but the ſea is not the ſmalleſt part of humour in the bodie of the earth: therefore it neither cauſeth the ſea, nor ſaltneſſe of it.

But beſide all theſe, there are other opinions alſo. Wherfore ſome again have attributed the cauſe to aduſt vapours, partly let fall on the ſea, and partly raiſed from it to the brinks and face thereof; Others to the motion of the ſea; Some to under-earth, or rather[k] under-ſea fires, of a bituminous nature, cauſing both the motion and ſaltnes alſo; Others to an hot and drie aſpiration exhaled out of the [l] earth, and mixed with the water of the ſea.

k *Lyd. de orig. font. cap.* 8, & 9.

l viz. under the water.

But that which followeth ſeemeth abſolutely the beſt, namely that it is effected by the working of the ſunne, which draweth out the purer and finer parts, leaving the groſſer and more baſe behinde; even as in this little world of our bodies, the pureſt part of our nouriſhment being employed in and on the bodie, the urine and other excrements remaining do retain a perfect ſaltneſſe. Unto which opinion they alſo aſſent, who affirm that the ſaltneſſe is radically or originally

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in the matter of the water; which muſt be ſo underſtood as the water hath in it an earthy kinde of ſubſtance of a drying nature: which (as I ſuppoſe) was not firſt in the matter of the waters before they were gathered unto this one place where now they are; becauſe, as is reported and written, there be ſalt mines in ſundry places, as in a certain hill in *Barbary*, out of which perfect ſalt is digged, and uſed for ſalt after it is made clean and beaten ſmall. All which doth greatly commend the providence and wiſdome of God: For it is not unlike but that the ſea was by his wiſdome and providence gathered into ſuch ſalt valleys of the earth, as were otherwiſe barren and unfruitfull: with which ſubſtance, the gathered water being mixed, muſt needs partake both of an earthy matter, and alſo of a ſalt ſavour; yet ſo, as this ſalt ſavour cannot be drawn out, and ſenſibly perceived in the mixture of many ſweet humours joyned with it, without a ſeparation firſt made by the heat of the ſunne, of the thinner parts from the thicker: And ſo the ſunne is a diſponent, though not a productive cauſe of this ſaltneſſe.

The ſea made ſalt by the ſubſtance of the ground: that is my opinion.

Now this opinion may be ſtrengthened by many reaſons.

Firſt, becauſe ſea-water, when it is boyled, doth evaporate a dewie or watrie humour, which being collected and kept together, hath a ſweet taſt or ſavour.

Secondly, becauſe vapours drawn from the ſea and turned into rain, are void of ſaltneſſe.

Thirdly, becauſe the ſea in ſummer, and towards the South (as *Ariſtotle* affirmeth) is more ſalt then elſewhere; which cometh to paſſe in that the ſunne, at that time and place, draweth away more of the ſweet humours then at other times.

Fourthly, becauſe the ſea is freſher towards the bottome, then at the top; as ſome have found by uſing practiſes to experience it.

 Fifthly,

Fifthly, becauſe (as *Ariſtotle* again teſtifyeth) if an emptie veſſel ſealed up with wax, be by ſome means or other cauſed to ſink into the ſea, and there let lie for a certain ſpace, it will at the laſt be filled with very freſh and ſweet water, iſſuing in through the inſenſible ſmall pores of the wax: for by this manner of paſſing into the veſſel, the thin is ſtrained from the thick: yea by this means, the earthy and aduſt part, which carrieth the ſaltneſſe in it, is excluded, whileſt the other is admitted. For in every ſalt ſavour, two things are required; viz. an aduſtion, and an earthie kinde of ſubſtance of a drying nature: both which are found in the ſea. For (according to the teſtimonie of Phyſicians) ſea-water doth heat and drie more then other waters, and is alſo more ponderous or heavie; yea and it doth more eaſily ſuſtain a heavie burden, giving it leſſe leave to ſink then the freſh ſilver-ſeeming ſtreams.

And thus we ſee how the ſea comes to be ſalt. It followeth to ſhew why rivers be not ſalt, as well as ſeas.

Of rivers; and from whence they proceed.

Now for the better explaining of this, the firſt thing conſiderable will be concerning the originall of fountains and rivers.

Ariſt. de Met. lib. 1. cap. 13.

Ariſtotle handled them amongſt Meteors of a watry kinde, becauſe he ſuppoſed that there was the ſame originall of rivers within the earth, which was of watry Meteors in the aire above the earth. For if this aire (ſaith he) coming neare to the nature of a vapour, is by cold turned into water; then the aire which is in the caverns of the earth, may be, by the ſame cauſe, condenſed into water alſo. According to which grounds, we cannot but make this the originall of fountains and rivers; namely, that they are ingendred in the hollow concavities of the earth, and derive both their birth and continuall ſuſtenance from the aire; which piercing the open chinks or *chaſma's* of the earth, and congealed by the

the cold of thoſe places, diſſolveth into water (as we ſee the aire in winter nights to be melted into a pearlie dew, ſticking on our glaſſe windows) and being grown to ſome quantitie, it will either finde a way, or make a way to vent its ſuperfluitie. All which agreeth very well to the nature of the aire, which ſeeing it is hot and moiſt, the heat being gone it is thickened, and ſo eaſily turned into water.

And as for a continuall running of rivers cauſed by this water, it is (ſaith *Ariſtotle*) by a perpetuall ſucceſſion of new aire.

But to this opinion we may not abſolutely make ſubſcription; for although aire may be thus converted into water, yet the ſole matter of rivers cannot come from hence: it may haply be an helping cauſe, but not a prime, or principall cauſe. For firſt, ſith the aire is a thin ſubtil bodie, there is neceſſarily required an abundance of aire to make but a little quantitie of water; inſomuch that it is not doubted by ſome without cauſe, whether the dennes and hollow places of the earth be vaſt enough to receive ſo much aire as can make water enough to runne along, untill it break out into a river or ſpring. Secondly, there be many fountains which have (as it were) a kinde of ebbing and flowing at certain direct and ſet times, which they keep as conſtantly as the very ſea it ſelf. As for example, among other ſtrange rivers, [n] *Plinie* makes mention of *Dodon*, Jupiters fountain, which evermore decreaſeth from midnight untill noon; thence it increaſeth untill midnight again. And in the iſland *Delus*, the fountain of *Inopus* (as he alſo affirmeth) keeps his courſe with *Nilus*. Alſo he makes mention of a little iſland in the ſea over againſt the river *Timavus* or *Brenta* in Italie, having certain fountains in it which increaſe and decreaſe, according to the ebbing and flowing of the vaſt bodie of *Amphitrite* or the ſea.

n *Lib.* 2. *cap.* 103.

 Wherefore

Wherefore the wiſe man *Siracides* thought more truely (Ecclus. 40. 11.) concerning theſe things; affirming that *all things which are of the earth ſhall turn to the earth again: and that which is of the waters doth turn again into the ſea.* Which ſaying of his I do not ſay is much ſtrengthened, but abſolutely confirmed by one more authentick then it ſelf; namely by that of Solomon, Eccleſ. 1. 7. where it is witneſſed that *all rivers runne into the ſea, yet the ſea is not full: unto the place from whence the rivers come, thither they return again.* Which teſtimonie makes it plain that the ſea is the principall cauſe of all rivers: and if therefore *Ariſtotles* † aëriall vapours have any thing to do in this generation, it is as much as nothing: yet that which they are able to do, I imagine they perform, joyning themſelves with the currents which come from the ſea; and ſo they runne together in the veins of the earth, either untill free leave be given them to come abroad, or that (like *Hannibal* in the Alps) they work themſelves a way.

† Aëriall vapours are partly a cauſe of ſprings.

Now in this there is little or no difference between *Solomon* and *Plato*, together with the ancient Philoſophers before him, although *Ariſtotle* diſſenteth. For that which *Solomon* calleth the ſea, ° *Plato* calleth the great * gulf of the earth; ſaying, Εἰς τοῦτο τὸ χάσμα συῤῥέουσι τε πάντες οἱ ποταμόι, καὶ ἐκ τούτου πάλιν πάντες ἐκρέουσιν· *id eſt, Ad illum hiatum & omnes fluvii confluunt, & ex hoc viciſſim omnes effluunt:* that is, *Into this gulf all rivers do both flow or aſſemble themſelves, and alſo by their courſes come or flow out again.*

° *Goclen. Diſput. Phyſ. cap. 39. ex Plat. in Phæd.*

* Plato did but expreſſe Moſes meaning, Gen. 7. 11. in other words.

But what need more words? It is without controverſie that rivers have their firſt originall from the ſea: that is the fountain-head from whence all fountains have their heads. Neither can the ſaltneſſe of the ſea, and freſhneſſe of rivers, ſtop this current.

How ſprings come to be freſh, ſeeing the ſea is ſalt.

For concerning ſprings, it is true indeed that they are

freſh; and this freſhneſſe, notwithſtanding their ſalt originall, may be aſcribed to percolation and ſtraining through the narrow ſpungie paſſages of the earth, which makes them leave behinde (as an exacted toll) the co-lour, thickneſſe, and ſaltneſſe. So that you ſee, ſea wa-ter (though in it ſelf of a ſalt and brackiſh ſavour) by paſ-ſing through divers windings and turnings of the earth, is deprived of all unpleaſantneſſe: and by how much the ſpring-heads of rivers are [p] remote from the ſea, by ſo much are their waters affected with a delightfull reliſh: yea and why they aſcend up to the higheſt mountains, already hath been declared. Unto which may be added, that they come not with a direct courſe from the ſea unto thoſe hills; neither do they aſcend directly upwards on the ſudden, but by degrees: and ſo, winding them-ſelves through many crooked paſſages and turnings, they do (as it were) ſcrue themſelves up to the convenienteſt place of breaking out; and cannot go back, becauſe the ſea is a farre heavier bodie then the vein that cometh from it; even as the bloud in our veins is nothing in pro-portion to the liver, from whence each vein of bloud hath its firſt beginning.

[p] *Putei prope ma-re, ſalſi; longiùs, minùs; procul, nihil. Jul. Scal. exercitat.* 50.

The benefit and uſe of waters.

But I draw towards a concluſion, adding in the laſt place, that of waters (be they ſeas, or rivers) we have a threefold uſe and benefit.

Firſt, that out of them, drink may be afforded to man and beaſt; as it is Pſal. 104. 11. *They give drink to every beaſt of the field: the wilde aſſes quench their thirſt, &c.*

Secondly, that running through the earth, as bloud through the bodie, by interlacing it, and ſometimes overwhelming it, they make the earth able to produce thoſe fruits which are neceſſary for the life of man: which benefit of overflowing, ſo fattens the whole land of Egypt, that the prieſts of that countrey did thereupon aſcribe the beginning of time, or of every thing that now

now is, to that time of the yeare when their *Nilus* overflowed, or when it firſt began to lift up it ſelf above the banks; and diffuſe an ample portion of manuring bountie into the lap of the land: which is as good to them as if *Jupiter* ſhould deſcend in a golden ſhower. And for other places, where there be no ſuch luckie flouds, there it is found that theſe bounteous watrie bodies yeelding vapours, do purchaſe for them ſuch dropping ſhowers of rain, that *the valleys ſtand ſo thick with corn, that they laugh and ſing*: and therefore theſe are great benefits challenging moſt humble thanks; as it is Pſal. 107.

The third is, that they can quell the rage of the hotteſt element, and keep our manſions from cinders, or a flamie converſion into aſhes.

The fourth is, that they yeeld us an eaſineſſe and ſpeedineſſe of conduct and traffick, by which each place partaketh of the bleſſings of every place.

Yea theſe, and many more, are the benefits of water, without which the life of man could not be ſuſtained. But here I contract my ſails, and end this queſtion: for by coming on the ſhore, I ſhall the better view that which remaineth concerning this liquid element. Wherefore it followeth.

Queſt. 7. Wherein is ſhewed the cauſe of the ebbing and flowing of the ſea.

The next and laſt queſtion propounded, was concerning the fluxion and refluxion of the ſea; wherein I purpoſe (as neare as I can) to ſhew, both why ſeas have that alternate motion, as alſo why ſuch murmuring brooks and rivers, as do not ebbe and flow, are deſtitute of the foreſaid courſes.

The motion of the ſea is either naturall, or violent. The firſt it performeth on its own accord: the other it doth not, but by ſome externall force compelling it.

The firſt, being a naturall motion, is ſuch as is in every other water; namely that all waters do evermore flow into the loweſt place, becauſe they have an heavineſſe

or ponderoſitie in them. And thus the ocean naturally floweth from the North, where it is higheſt, unto the South as the lower place: for [q] there, in regard of the great cold, the waters are not onely kept from drying up, but alſo increaſed, whileſt much aire is turned into water: whereas in the South, by reaſon of great heat, they are alwayes ſucked up and diminiſhed. Now this motion is called a motion of Equation; becauſe it is for this end, namely that the *ſuperficies* of the water may be made equall, and diſtant alike on every ſide from the centre of gravitie.

[q] *Zanch. Tom.* 3. *lib.* 4. *cap.* 1. *queſt.* 6. *theſ.* 1.

The other, being that which dependeth upon ſome externall cauſe, is ſuch as may be diſtinguiſhed into a threefold motion. One is rapt, and cauſed by force of the heavens, whereby it floweth from * Eaſt to Weſt. The ſecond is a motion of Libration, in which the ſea ſtriving to poiſe it ſelf equally, doth (as it were) wave from one oppoſite ſhore to another. And note that this is onely in ſuch as are but ſtrait and narrow ſeas, being a kinde of trepidation in them, or (as I ſaid before) a motion of Libration; juſt like a riſing and falling of the beam of an equall-poiſed balance, which will not ſtand ſtill, but be continually waving to and fro. The third and laſt is *Reciprocatio*, or *Æſtus maris*, called the ebbing and flowing of the ſea.

*Note that this is pertinent to the openeſt ſeas, as the Atlantick and Southſeas, and eſpecially between the Tropicks, where is a conſtant Eaſterly breath cauſed by the ſuperiour motions which draw together with them, not onely the element of fire, but of the aire and water alſo.

The cauſe of which hath added no little trouble, nor ſmall perplexitie, to the brains of the beſt and greateſt Philoſophers. *Ariſtotle*, that maſter of knowledge, helps us little or nothing in this queſtion. And yet [r] *Plutarch* affirmeth that he attributed the cauſe to the motion of the ſunne. [s] Others have gathered from him that he ſeemed to teach, it was by certain exhalations which be under the water, cauſing it to be driven to and fro according to contrary bounds and limits. But howſoever he taught, or whatſoever he thought, this we finde, that

[r] *De placit. Philoſ. lib.* 3. *cap.* 17.

[s] *Dr. Fulk. Meteor.* [illegible]

 nothing

nothing troubled him more. For (as [t] *Cœlius Rhodiginus* writeth) when he had ſtudied long about it, and at the laſt being weary, he died through the tedioușneſſe of ſuch an intricate doubt. [u] Some ſay he drowned himſelf in *Negropont*, or *Euripus*, becauſe he could finde no reaſon why it had ſo various a fluxion and refluxion, ebbing and flowing ſeven times a day at the [x] leaſt; adding, before that his untimely and diſaſtrous precipitation, theſe words, Ἐπειδὴ Ἀριστοτέλης οὐχ εἷλε τὸν Εὔριπον, Εὔριπος ἐχέτω τὸν Ἀριστοτέλη· *Quandoquidem Ariſtoteles non cepit Euripum, Euripus capiat Ariſtotelem*; That is, *Although Ariſtotle hath not taken Euripus, yet Euripus ſhall take Ariſtotle:* meaning that that ſhould end him, whoſe cauſe could not be comprehended by him.

But leaving *Ariſtotle*, we ſhall finde as little help from his maſter *Plato*, who (as did alſo the Stoicks) attributed the cauſe to the breath of the world. Such alſo have been the fancies of others; among whom, *Kepler* may not be forgotten, who in good earneſt affirmeth and beleeveth that the earth is a great living creature, which with the mightie bellows of her lungs firſt draweth in the waters into her hollow bowels, then by breathing reſpires them out again. A prettie fiction this; and well worthy the pen of ſome fabling poet, rather then to be ſpoken in good ſober ſadneſſe, and affirmed as a truth.

Others would have the cauſe to be by reaſon of waters in the holes of the earth forced out by ſpirits; which comes ſomething neare to that before concerning the breath of the world.

A third ſort attribute the cauſe to the circular motion of the earth; affirming that there is a daily motion of the earth round about the heavens, which it performeth in 24 houres: the heavens in the mean time onely ſeeming to move, and not moving in very deed. This opinion came firſt from the *Pythagoreans*, and is defended by the

t *Antiquarum lectionum lib. 29. cap. 8.*

u *Juſt. Mart. Greg. Naz. Æſchines orat. contra Cteſ. L. Valla Dialog. de lib. arbitrio, &c.*

x *Livie* ſaith that it is not ſeven times a day; but *temere in modum venti nunc huc, nunc illuc rapitur. lib. 8. dec. 3.*

the *Copernicanians* as an effect of the foreſaid motion. As for example; the earth moving ſwiftly round, the water not able to follow the motion, is left behinde, and cauſed to flow to and fro; like as in a broad ſhallow veſſel may be ſeen: for put water in ſuch a veſſel, and let it be ſwiftly pulled forward, and then you ſhall ſee that by being left behinde, it will beat it ſelf againſt the one ſide, before the other can at all partake of its company: and ſo it is alſo in the earth, leaving the waters behinde whileſt it moveth.

The earth hath no circular motion.

But if this opinion be true; firſt tell me how it comes to paſſe that the ſea doth not ebbe and flow alwayes at one and the ſame time, but altereth his courſe, and is every day about one houre later then other. Secondly, ſhew me why the tides are at one time of the moneth higher then at another. Thirdly, let me be informed why broad lakes and large rivers do not flow as well as ſeas. Fourthly, let me be rightly inſtructed how it comes to paſſe that things tend to the earth as their centre, if the ſunne (as *Copernicus* and his followers imagine) be the centre of the world. Fifthly, ſhew me why the aire in the middle Region is not rather hot then cold: for ſurely if the earth ſhould move round with a diurnall motion, as they maintain, then the middle Region muſt be either farre higher then it is, or elſe the aire would be ſo heated by going round, that the coldneſſe in it would be either little or none at all; for it is a ruled caſe, that *Remotio à motu circulari dat quietem, frigiditatem, et gravitatem; ſicut propinquitas dat motum, calorem, et levitatem:* and thereupon it comes to paſſe that we have coldneſſe in the middle Region, the cauſe firſt beginning it being in reſpect of the hills which hinder the aire from following the motion of the heavens; as in * two ſeverall places of the ſecond dayes work I have declared. Sixthly, I would alſo know why an arrow being ſhot upright

* Viz. chap. 4. ſect. 2. and chap. 5. ſect. 2. Paragraph 1.

ſhould fall neare upon the ſame place where the ſhooter ſtandeth, and not rather fall beyond him, ſeeing the earth muſt needs carry him farre away whileſt the arrow flyeth up and falleth down again: or why ſhould a ſtone, being perpendicularly let fall on the Weſt ſide of a tower, fall juſt at the foot of it; or on the Eaſt ſide, fall at all, and not rather be forced to knock againſt it? We ſee that a man in a ſhip at ſea, throwing a ſtone upright, is carried away before the ſtone falleth; and if it be mounted up in any reaſonable height, not onely he which caſt it, but the ſhip alſo is gone. Now why it ſhould be otherwiſe in the motion of the earth, I do not well perceive. If you ſay that the earth equally carries the ſhooter, aire, arrow, tower, and ſtone; then methinks you are plainly convinced by the former inſtance of the ſhip: or if not by that, then by the various flying of clouds, and of birds; nay, of the ſmalleſt graſhopper, flie, flea, or gnat, whoſe motion is not tied to any one quarter of the world, but thither onely whither their own ſtrength ſhall carry them: ſome flying one way, ſome another way, at one and the ſame time. We ſee that the winde ſometimes hindereth the flight of thoſe prettie creatures; but we could never yet perceive that they were hindered by the aire; which muſt needs hinder them if it were carried alwayes one way by the motion of the earth: for from that effect of the earths motion, this effect muſt needs alſo be produced.

Arm'd with theſe reaſons, 'twere ſuperfluous
To joyn our forces with Copernicus.

But perhaps you will ſay it is a thing impoſſible for ſo vaſt a bodie as the heavens to move dayly about the earth, and be no longer then 24 houres before one revolution be accompliſhed: for if the compaſſe were no [y] more then ſuch a diſtance would make as is from hence to Saturns ſphere, the motion muſt extend, in one firſt ſcruple

[y] *Lanſberg. comment. in motum terræ diurn. pag.* 7.

ſcruple or minute of time, to 55804 miles; and in a moment, to 930 miles: which is a thing impoſſible for any Phyſicall bodie to perform.

Unto which I muſt firſt anſwer, that in theſe menſurations we muſt not think to come ſo neare the truth, as in thoſe things which are ſubject to ſenſe, and under our hands: For we oft times fail, yea even in them, much more therefore in thoſe which are remote, and (as it were) quite abſent, by reaſon of their manifold diſtance.

Secondly, I alſo anſwer, that the wonder is not more in the ſwiftneſſe of the motion, then in the largeneſſe of the circumference: for that which is but a ſlow motion in a little circuit (although it be one and the ſame motion ſtill) muſt needs be an extraordinary motion in a greater circle; and ſo, I ſay, the wonder is not more in the motion then in the largeneſſe of the circumference. Wherefore, he that was able, by the power of his word, to make ſuch a large-compaſſed bodie, was alſo able ſo to make it, that it ſhould endure to undergo the ſwifteſt motion that the quickeſt thought can keep pace with, or poſſibly be forged in imagination: For *his works are wonderfull, and in wiſdome he hath made them all.*

Beſides, do but go on a while, and adhere a little to the ſect of *Copernicus*, and then you ſhall finde ſo large a ſpace between the convexitie of Saturns ſphere, and the concavitie of the eighth ſphere (being more then 20 times the diſtance of Saturn from us, and yet void of bodies, and ſerving to no other purpoſe but to ſalve the annuall motion of the earth) ſo great a diſtance, I ſay, that thereby that proportion is quite taken away which God the Creatour hath obſerved in all other things; making them all * in number, weight and meaſure, in an excellent portion and harmonie. * Wiſd. 11.22.

Laſt of all, let me demand how the earths motion and heavens

heavens reſt can agree with holy Scripture. It is true indeed (as they alledge) that the grounds of Aſtronomie are not taught us in Gods book: yet when I heare the voice of the everlaſting and ſacred Spirit ſay thus, *Sun ſtand thou ſtill, and thou Moon in the valley of Ajalon*, I cannot be perſwaded either to think, teach, or write, that the earth ſtood ſtill: but the ſunne ſtood, and the moon ſtayed, untill the people had avenged themſelves on their enemies. Neither do I think after this that it was the earth which went back, but the ſunne upon Ahaz his diall in the dayes of Ezekias. For when God had made the earth, what ſaid he? did he bid it move round about the heavens, that thereby dayes, weeks, moneths and yeares might be produced? No. What then? This was its office, and this that which it ſhould do; namely [z] bud and bring forth fruit for the uſe of man. And for motion, it was abſolutely and directly beſtowed upon the heavens and ſtarres: witneſſe thoſe very words appointing to the ſunne and moon their courſes; ſetting them in the heavens ſo as they ſhould never reſt, but be for ſignes, and for ſeaſons, for dayes and for yeares. And ſo alſo the wiſe * Siracides underſtood it, ſaying, *Did not the ſunne go back by his means, and was not one day as long as two?*

*Joſh. 10. 12, 13.

Eſay 38. 8.

z *Motus terra* is nothing but *Germinatio terræ.*

Gen. 1.

* Ecclus. 46. 4.

I conclude therefore, and concluding cannot forget that ſweet meditation of a religious and learned * Prelate, ſaying, *Heaven ever moves, yet is that the place of our reſt: Earth ever reſts, yet is that the place of our travell and unreſt.*

* Biſh. Hall.

And now, laying all together, if the cauſe be taken away, the effect periſheth. My meaning is no more but thus; that ſeeing the earth is void of motion, the ebbing and flowing of the ſea cannot be cauſed by it, but dependeth upon ſome other thing.

Or again, were it ſo that the earth had ſuch a motion,

I ſhould ſcarce beleeve that this ebbing and flowing depended on it. For (as I ſaid before) if this were the cauſe, it could never be that the courſe of ebbs and flouds ſhould keep ſuch a regular alteration as they do day by day: Neither could it produce a cauſe why the tides ſhould be more at one time of the moneth then at another: Nor yet (as ſome ſuppoſe) could the waters be ſuffered to flow back again, but alwayes muſt be going on as faſt as they can, toward the Eaſtern part of the world. But I leave this and come to another.

It was a mad fancie of him who attributed the cauſe to an Angel, which ſhould ſtand in a certain place of the world, and ſometimes heave up the earth above the waters, ſometimes conſtraining it to ſink below them. In an ebbe, he heaves it up; and in a floud he lets it ſink.

As improbable alſo is that of ſome others who imagine one Angel to be an Angel of the water, whoſe office is (as in the pool of *Betheſda*) to move the waters to and fro: and for proof of this, that place is alledged in the * Revelation, where when the vials were poured out upon the kingdome of the beaſt, one of the Angels is called an Angel of the waters. But know that the ſame anſwer made before concerning the moving of the windes, will ſerve to ſtop this gap. Or were it ſo that we muſt be tied to a literall ſenſe, the compulſion overthrows the aſſertion; becauſe he is called an Angel of the waters, not for that he cauſeth them to ebbe and flow, but becauſe it was his office to corrupt them and turn them into bloud.

* Revel. 16. 5.

More probable was their opinion who attribute the cauſe to certain ſubterranean or under-ſea fires, whoſe matter is of neare akin to the matter of the Moon; and therefore, according to her motion, they continue their times of burning: and burning, they make the ſea ſo

ſo to boyl as that it is a tide or high-water; but going out, the ſea ſinks again.

But now if this opinion were true, then the water in a tide would be thinner, through the heat which cauſeth it to aſcend, thinner then at other times: and ſo a ſhip carrying one and the ſame weight, would ſink deeper in a floud then in an ebbe; which experience ſhews to be otherwiſe. Yea were it ſo that there were ſuch ſuppoſed fires in the bottome of the ſea, cauſing it to ſwell up like boyled water, then it would alſo follow that the ſea-water would be ſo hot that it might not be touched: For if the heat of the ſuppoſed fire be ſufficient to make it aſcend, it is ſufficient alſo to make it hot: which would appeare leſſer in an ebbe then in a floud.

This is the moſt probable cauſe why the Sea ebbs and flows.

Wherefore, omitting theſe and the like opinions, the moſt allowable is to attribute this flux and reflux, to the effects of the divers appearances of the Moon: For we ſee by experience, that according to the courſes of the Moon, the tides are both ordered and altered. By which it is not improbable that the waters are drawn by the power of the Moon, following her daily motion, even as ſhe is carried with the *Primum Mobile*. Yea were it not ſo that the ſea were hindered by ſome accident, ſome have ſuppoſed that theſe waters would go round from Eaſt to Weſt in 24 houres; and ſo round again, even day by day. The accident hindering this circular motion, is in regard that the Weſt ocean ſea is ſhot in between the firm land of America on the Weſt part, and the main land of Africa and Europe on the Eaſt part. But were it ſo that there were no ſuch accidentall let in the ſea, to be hindered by the land, it would orderly follow the Moon, and go daily round: And ſeeing alſo it is hindered by ſuch an impediment, it is a probable conjecture to think, that it cannot but be forced to retire;

tire; for the firm land beats it back again. Thus Mr *William Bourn*, in the 5 book of his treaſure for travellers, chap. 6. determineth.

Others there be who attributing the cauſe to the moon, do demonſtrate it after another manner; namely that through her influence ſhe cauſeth theſe alternate motions: and this influence of hers worketh according to the quadrate and oppoſite aſpects of her poſition in the heavens; or according to the quadrate and oppoſite configurations from that place where ſhe was at the beginning. For the ſeas, [z] ſaith a well learned writer, begin to flow when the moon by her diurn rapt motion from Eaſt to Weſt, cometh to the nine a clock point in the morning, or is South-eaſt: then they will continue flowing untill ſhe come to a quadrate aſpect, or to 90 degrees, which will be about 3 of the clock in the afternoon, or be South-weſt when they ceaſe from flowing and begin to ebbe, continuing ſo untill ſhe come to 180 degrees, or the oppoſite place, which will be ſomewhat after nine of the clock at night, being the oppoſite place to that from which ſhe began her flowing. Then again they begin to flow, and ſo continue untill ſhe attain to 270 degrees from her firſt place, which will be after three in the morning. And then laſtly they begin to ebbe, and ſo continue ſtill, untill the moon come to that place where ſhe was at the beginning: for there the floud begins again. Thus it is ordinarily; yet her illumination, the ſunne and other ſtarres may haſten, hinder, or ſomething alter the moons influence, as we ſee in ſpring-tides, at the change and full; and neap-tides, at quarters and half quarters of the moon: confeſſed by [a] thoſe who have been great maſters in Aſtrologie.

And let this alſo be known, that though the moon have dominion over all moiſt bodies, yet not alike, becauſe of other cauſes concurring; as the indiſpoſition or

z Sir Chriſtopher Heydon, in his defence of Judiciall Aſtron. chap. 21. pag. 432.

a *Idem*, pag. 433. cap. 21.

unfitneſſe of the ſubject, or for want of matter, and the like conſiderations. As for example, though it be probable that there be tides *in mari Atlantico*, yet they are not to be perceived, by reaſon of the vaſt wideneſſe and profunditie thereof: in other places alſo of the ſea are no tides, being hindered by the ſtrength of ſome current, which prevaileth: and in freſh water there is no tide, becauſe of the raritie, thinneſſe, and ſubtiltie thereof, which cannot retain the influence of the moon.

Why all ſeas do not ebbe and flow

Why freſh waters do not ebbe and flow.

And note alſo that in ſuch havens and rivers as ebbe and flow, there may be great diverſitie; which cometh to paſſe both according to the indraught, as alſo by reaſon of the crooked and narrow points and turnings of the banks, which do let and ſtay the tide from that which is the common and ordinary courſe in the main bodie of the ſea: but afterwards, when it is in, and hath taken his ſway, then it cannot ſo ſoon reverſe back, but muſt continue untill the water behinde it be deſcended or ebbed into the ſea. The river *Thames* may ſerve as an inſtance in this: for it is not a full ſea in all places of it at one inſtant, being three parts of a floud at the lands end, before it can be any floud at *London*. But were it ſo that there were no creeks, iſlands, ſtraits, turnings, or other accidentall hinderances, then there ſhould be no difference found in any ſea, but the whole bodie ſhould be ſwayed up and down with a conſtant courſe: whereas ſince it is otherwiſe, the times for every ſuch place muſt be once found out, that thereby they may be known for ever.

Wherefore the cavils of ſome men are nothing worth, who by bringing particular and rare (perhaps vain) examples, do think to take away this power from the moon. For ſith this lunar regiment is pertinent to moſt ſeas, and that all our ocean doth follow her; the exceptions taken from certain ſtraits, creeks, bayes, or

ſuch like places, ought to be referred to accidentall hinderances; as to the unaptneſſe of the places, rocks, qualities of the regions, differing nature of the waters, or other ſecret and unknown impediments;ſuch as manifeſt themſelves in *Cambaia*. For it is reported, that there, although the tides keep their courſe with the moon, yet it is contrary to the courſe they hold in theſe parts; for they are ſaid to increaſe, not with the full of the moon, but with the wane; and ſo the ſea-crabs do likewiſe: amongſt other things the nature of the water and qualitie of the region may much avail to this, if it be true. And in the iſland of *Socotora* (ſaith Mr *Purchas*) Don John of *Caſtro* obſerved many dayes, and found (contrary both to the Indian and our wont) that when the moon riſeth,it is full ſea, and as the moon aſcends, the tide deſcends and ebbeth, being dead low water when the moon is in the meridian. Theſe things are thus reported, and if they ſhould be true, yet we muſt know that they are but in particular ſeas, as I ſaid before, where a generall and univerſall cauſe may be much hindered, and in a manner ſeem as if it were altered.

They that deſcend the brinie waves
Of liquid Thetis flouds,
And in their ſhips of brittle ſtaves Pſal. 107.23,24.
Trade to augment their goods;
Theſe men behold, and in the deeps they ſee
How great Gods wonders of the waters be.

I conclude therefore, and cannot but ſay, that this is as great a ſecret, to be in every point diſcuſſed and unfolded, as any nature can afford: *Arcanum enim naturæ magnum eſt*, It is a great ſecret of nature, and gives us therefore principall occaſion to magnifie the power of God, whoſe name onely is excellent, and whoſe power above heaven and earth.

Laſt of all, this is the finall cauſe of the ſeas motion:

God hath ordained it for the purging and preſerving of the waters. For as the aire is purged by windes, and as it were renewed by moving to and fro; ſo this motion keeps the waters of the ſea from putrefaction.

An Appendix to the former Section, wherein the properties and vertues of certain ſtrange rivers, wells, and fountains, are declared.

I Do not well know how to end this diſcourſe of waters, before I have ſpoken ſomething of the ſtrange properties that are in certain rivers, wells, and fountains. Some are hot, becauſe they are generated and flow out of veins of brimſtone, or receive heat from thoſe places where ſubterranean fires are nouriſhed. For this is a generall rule, that all waters differ according to the qualitie of the place from whence they ariſe. Some again are ſowre or ſharp like vineger; and theſe runne through veins of allome, copperas, or ſuch mineralls. Some may be bitter, that flow out of ſuch earth as is bitter by aduſtion or otherwiſe. Some may be ſalt, whoſe current is through a ſalt vein. And ſome may be ſweet; theſe are ſuch that be well ſtrained through good earth, or runne through ſuch mineralls as be of a ſweet taſte.

[illegible]

Our baths in the Weſt countrey, and S. Anne of Buckſtones well in the North part of *England*, and many other elſewhere, are hot. *Ariſtotle* writeth of a well in *Sicilie*, whoſe water the inhabitants uſed for vineger: and in divers places of *Germanie* be ſprings which harbour much ſharpneſſe. In *Bohemia*, neare to the citie called *Bilen*, is a well (ſaith Dr *Fulk*) that the people uſe to drink of in the morning, in ſtead of burnt wine. And ſome (ſaith he) have the taſte of wine; as in *Paphlagonia* is a well, that maketh men drunk which drink of it: now this is, becauſe that water receiveth the fumoſitie of

Water uſed in ſtead of vineger.

Water uſed in ſtead of burnt wine.

Water which makes men drunk.

brimſtone,

brimſtone, and other minerals, through which it runneth: and retaining their vertue, it filleth and entoxicateth the brain, as wine doth. For it is poſſible that fountains may draw ſuch efficacie from the mines of brimſtone, that they may fill their brains with fume that drink thereof, who alſo become drunk therewith. To which purpoſe *Ovid* ſpeaketh thus,

Quam quicunque parùm moderato gutture traxit,
Haud aliter titubat, quàm ſi mera vina bibiſſet.

Which whoſo draws with an immoderate throat,
Trips, as his brains in meer good wine did float.

And *Du Bartas* alſo,

Salonian fountain, and thou Andrian ſpring,
Out of what cellars do you daily bring
The oyl and wine that you abound with ſo?
O earth, do theſe within thine entralls grow?
What? be there vines and orchards under ground?
Is Bacchus trade and Pallas art there found?

A water which is deadly to beaſts, but not to men.

Ortelius, in his Theatre of the world, makes mention of a fountain in *Ireland*, whoſe water killeth all thoſe beaſts that drink thereof, but not the people, although they uſe it ordinarily.

A purging killing water.

It is alſo reported, that neare to the iſle *Ormus*, there is a great fountain found, the water whereof is as green as the field in ſpring-time, and ſalt as the ſea. He which drinketh but a little of it, is incontinently taken with a violent ſcowring; and he that drinketh very much thereof, dieth without remedie.

A water which makes horſes mad.

Ælianus makes mention of a fountain in *Bœotia* neare to *Thebes*, which cauſeth horſes to runne mad, if they drink of it.

A cold burning water.

Plinie ſpeaketh of a water in *Sclavonia* which is extreamly cold; yet if a man caſt his cloth cloak upon it, it is incontinently ſet on fire.

A water which will both roſt and bake.

Ortelius again ſpeaketh of a boyling fountain, which

will preſently ſeethe all kinde of meat put into it: it will alſo bake paſte into bread, as in an oven well heated. This is ſaid to be in the iſle of *Grontland.*

A river which breedeth flies.

The river *Hypanis* in Scythia every day brings forth little bladders, out of which come certain flies. They are bred in the morning, fledge at noon, and dead at night: wherein mankinde is alſo like them. For his birth is as his morning; his ſtrongeſt time, or his middle time (be his time long or ſhort) is as his noon; and his night is that, when he takes leave of the world, and is laid in the grave to ſleep with his fathers: For this hath been the ſtate of every one, ſince firſt the world had any one. The day breaking, the Sunne ariſeth; the Sunne ariſing continues moving; the Sunne moving, noontime maketh; noontime made, the Sunne declines; the Sunne declining threatens ſetting; the Sunne ſetting, night cometh; and night coming our life is ended. Thus runnes away our time. If he that made the heavens Sunne, hath ſet our lives Sunne but a ſmall circumference, it will the ſooner climbe into the noon, the ſooner fall into the night. The morning, noon, and evening (as to thoſe flies) theſe three conclude our living.

A water which maketh oxen white.

Clitumnus, ſaith *Propertius*, *lib.* 3. is a river or ſpring in Italie which maketh oxen that drink of it, white. Dr. *Fulk* yeeldeth this reaſon, namely becauſe the qualitie of the water is very flegmatick, Fulk. Met. lib. 4.

Water which maketh ſheep black or white.

Plinie ſpeaketh of the river *Melas* in *Bœotia*, which maketh ſheep black: But *Cephiſus*, another ſtream which flows out of the ſame lake, makes them white. See *Plin.* in the 103. chap. of his 2 book.

Water which makes them red.

Plinie alſo, in the former book and chapter, makes mention of the river *Xanthus*, which will make the flocks turn red, if they drink the water. *Solinus* affirmeth the like of a fountain in *Arabia* neare to the Red-ſea, ſaying, *in littore maris iſtius fontem eſſe, quem ſi oves biberint*,

rint, mutent vellerum qualitatem, at fulvo poſtmodum nigreſcant colore. To which purpoſe we may heare *Du Bartas* deſcant thus,

[b] *Cerona, Xanth, and Cephiſus, do make*
The thirſty flocks, that of their waters take,
Black, red, and white: And neare the crimſon deep,
Th' Arabian fountain maketh crimſon ſheep.

b *Plin. lib.31.cap. 2.* See alſo *lib.2. cap.103.*

A water like to the former.

Seneca ſpeaketh of a river which maketh horſes red. Now theſe things may be, as Dr. *Fulk* yeelds probable conjecture, in that the qualitie of the water may alter the complexion; and the complexion being altered, the colour of their wooll and hairs may be changed. *Ariſtotle*, in his 3 book, chap.12, *de hiſtor. animal.* maketh mention of ſuch like waters alſo: as there is a river in *Aſſyria*, called *Pſychrus*, of that coldneſſe, which cauſeth the ſheep that drink thereof to yean black lambes: in *Antandria* there are two rivers, the one maketh the ſheep white, the other black: the river *Scamander* doth die them yellow. Dr. *Will.* in his Hexap. on Gen. *ex Ariſtot.*

A water cold in the day, and hot in the night.

Plinie makes mention of the Hammonian fountain, ſaying, *Jovis Hammonis fons interdiu frigidus, noctibus fervet*; The fountain of Jupiter Hammon is cold in the day time, and hot in the night. Like unto which is that which he calleth the fountain of the Sunne; excepting that the water is ſweet at noon, and bitter at midnight: but for the times of cold and heat, it is like to the other fountain. *lib.2.cap.103.* Some ſeem to think that this may be the reaſon, namely, that the cold humidity of the night nouriſheth the heat, and by an *Antiperiſtaſis* cauſeth it to reinforce it ſelf inward: But by day (the Sunne-beams ſucking up that heat which is in the ſurface, that is to ſay, above) the water remaineth cold. Others determine thus, ſaying that this may be by the ſame reaſon that well-water is colder in ſummer then it is in winter.

We

A water turning wood into ſtone.

We have in *England*, wells which make wood and all things elſe that be caſt into them, ſtones: the cauſe whereof is great cold.

A river which reſts every ſeventh day.

Joſephus, de Bello Judaic. lib. 7. *cap.* 24. writeth that there is a river in *Paleſtine*, which paſſeth between two cities, called by theſe names, viz. *Arcen*, and *Raphanee*, which river is admirable for an extraordinarie ſingularitie: namely, that having entertained his violent and ſwift courſe for the ſpace of ſix dayes, on the ſeventh it remaineth dry: which being paſt, it runneth as before; and therefore is called the river of the Sabbath: [c] *Du Bartas* calleth it the Jews religious river,

c In his 3 day.

Keeping his waves from working on that day
Which God ordain'd a ſacred reſt for ay.

A ſtrange well in *Idumea*.

In *Idumea* was a well, which one quarter of the yeare was troubled and muddy, the next quarter bloudie, the third green, and the fourth cleare. *Iſiodore* makes mention of this, and it is called the fountain of Job.

Poyſoning waters.

Seneca and others affirm that there be rivers whoſe waters are poyſon: now this may be, in regard that they run through poyſonous mineralls, and receive infection from their fume, and the like. Such is the water *Nonacrinis* in *Arcadia*: of which it is recorded, that no veſſell of ſilver, braſſe, or iron, can hold it, but it breaketh in pieces; onely a mules hoof and nothing elſe can contain it. [d] Some write that *Alexander* the great, through the treacherie and plots of *Antipater*, was poyſoned with this water. *Curtius* calleth it the water of *Styx*, *lib.* 10. *juxta finem.*

d Plutarch. See alſo Juſt. *lib.* 12. and Curt. *lib.* 10.

A water which makes cattell give black milk.

In an iſle of *Pontus*, the river *Aſtaces* overfloweth the fields; in which whatſoever ſheep or other milch cattell be fed, they alwayes give black milk. This river *Plinie* forgetteth not, *lib.* 2. *cap.* 103.

Poyſoning waters.

It is reported that in *Poland* is a fountain ſo peſtilent, that the very vapour thereof killeth beaſts when they approach unto it.

There

There be ſome waters which make men mad who drink of them. Which is, in a manner, by the ſame reaſon that other fountains have made men drunk.

Water which makes men mad.

Some again ſpoil the memorie, and make men very forgetfull: which may very well be, by procuring obſtructions in the brain. *Fulk.*

A water that ſpoils the memorie.

Seneca ſpeaketh of a water, that being drunk provoketh unto luſt. *Plinie,* in the ſecond chapter of his 31 book, ſpeaketh of certain waters in the Region of *Campania,* which will take away barrenneſſe from women, and madneſſe from men. And in *Sicilia* are two ſprings: one maketh a woman fruitfull; the other, barren.

A water which procureth luſt.

The foreſaid *Plinie,* in the ſame book and chapter, ſaith that the river *Amphryſus* or *Aphrodiſium,* cauſeth barrenneſſe.

A water which cauſeth barrenneſſe, and another which cauſeth the teeth to fall, &c.

And again, in his 25 book and 3 chapter, he ſpeaketh of a ſtrange water in *Germanie,* which being drunk, cauſeth the teeth to fall out within two yeares, and the joynts of the knees to be looſed.

Lechnus, a ſpring of *Arcadia,* is ſaid to be good againſt abortions.

In *Sardinia* be hot wells that heal ſore eyes: and in *Italie* is a well which healeth wounds of the eyes. In the iſle of *Chios* is ſaid to be a well which makes men abhorre luſt: and in the ſame countrey, another whoſe propertie is to make men [e] dull-witted. Now theſe and the like qualities may as well be in waters which are mixed with divers mineralls and kindes of earth, as in herbs, roots, fruits, and the like.

e For this ſee *Plinie lib.* 31. *cap.* 2. where alſo you may reade of another that ſharpeneth the ſenſes.

The lake *Pentaſium* (as *Solinus* ſaith) is deadly to ſerpents, and wholeſome to men. And in *Italie,* the lake *Clitorie* cauſeth thoſe that drink of it, to abhorre wine. *Fulk. Met. lib.* 4.

Ortelius, in the deſcription of *Scotland,* maketh mention of divers fountains, that yeeld forth oyl in great quantitie:

Fountains of oyl.

quantitie: which cometh to paſſe by reaſon of the viſcoſitie or fatneſſe of the earth where they paſſe, and from whence they ariſe. The like may be alſo ſaid concerning pitchie ſtreams, &c.

Waters of a ſtrange temper.

Some waters are of that temper, that men ſink not in them, although they know not how to ſwimme. The like lake is ſaid to be in *Syria*, in which (as *Seneca* relateth) no heavie thing will ſink.

Of the fountain *Dodone*.

That which *Plinie* writeth of the fountain *Dodone*, *lib*. 2. *cap*. 103. is very ſtrange: whereupon *Du Bartas* makes this deſcant,

What ſhould I of th' Illyrian fountain tell?
What ſhall I ſay of the Dodonean well?
Whereof the firſt ſets any clothes on fire;
Th' other doth quench (who but will this admire?)
A burning torch; and when the ſame is quenched,
Lights it again, if it again be drenched.

There be ſome wells, whoſe waters riſe and fall, according to the ebbing and flowing of the ſea, or of ſome great river unto which they are neare adjoyned. The reaſon therefore of this is plain.

Waters which work miracles.

* In which he was deceived: it was rather to trie their ſtrength, and make them hardie; as *Verſtegan* well declareth, *Reſtitut. cap.* 2. *pag.* 45.

But ſtrange is that which D[r] *Fulk* mentioneth of the river *Rhene* in *Germanie*, which will drown * baſtard children that be caſt into it, but drive to land them that be lawfully begotten. Or is not this ſtrange which he alſo mentioneth of a certain well in *Sicilia*, whereof if theeves drink, they are made blinde by the efficacie of the water? The like I finde in other authours concerning certain fountains in *Sardinia:* for it is ſaid that they have this marvellous propertie; namely, that if there be a cauſe to draw any one to his oath, he that is perjured and drinketh thereof, becometh blinde, and the true witneſſe ſeeth more clearely then he did before. *Solinus* and *Iſiodore* report it.

Solinus alſo and [f] *Ariſtotle* make mention of a water called

[f] *De admirandis cap.* 51, & 52.

called the *Eleuſinian* or *Haleſinian* ſpring, which, through the noiſe of ſinging or muſick, is moved as if it danced or capered up and down: whereas at other times it is ſtill and quiet. But I conclude, and (as that [g] honoured Poet) cannot but ſay,

Sure in the legend of abſurdeſt fables
I ſhould enroll moſt of theſe admirables,
Save for the reverence of th'unſtained credit
Of many a witneſſe, where I yerſt have read it;
And ſaving that our gain-ſpurr'd Pilots finde,
In our dayes, waters of more wondrous kinde.

[g] *DuBart.*3 day.

Unto which (in things that are ſtrange, and not fabulous) let this alſo be added, that God Almighty hath propoſed infinite ſecrets to men, under the key of his wiſdome, that he might thereby humble them; and that, ſeeing what meer nothings they are, they might acknowledge that all are ignorant of more then they know: for indeed this is a rule, *Maxima pars eorum quæ ſcimus, eſt minima pars eorum quæ neſcimus; The greateſt part of thoſe things which we know, is the leaſt part of thoſe things which we know not.*

We ought to make the beſt uſes of the ſtrangeſt things.

Sect. 3.

Of the drie-land appearing after the gathering of the waters.

THe waters were no ſooner gathered, but the drie-land then appeared: and this may be called the ſecond part of the third dayes work. For the end of the gathering of the waters was, that the earth might ſhew it ſelf; and not onely ſo, but that alſo it might appeare ſolid and drie.

Two things therefore (ſaith *Pareus*) did the earth in this act principally receive: one was that it might be conſpicuous; the other, that it might be ſolid and drie:

and both depended upon the law of great neceſſitie.

For firſt, had it been continually covered with waters, how could it have been a place for habitation? either man muſt have been otherwiſe then he is, or elſe the earth muſt, as it was, be uncovered.

Secondly, were it uncovered, and not alſo drie and ſolid, it could not conveniently have bore up thoſe living creatures, weights, and other things, which tread and preſſe upon it. Whereupon Expoſitours well witneſſe, that earth is ſo named from the Hebrew *Erets:* which (ſay they) implieth a thing trod and runne upon by the creatures on it, and heavenly orbs about it. The ſame word ſpoken of particular places, is engliſhed *land*; as the land or earth of Canaan, and the like.

Here then it appeareth, that this was that time when the earth received her proper elementarie qualitie: which it had potentially before, but not actually till now. Now therefore, it being not onely uncovered, but alſo made drie, it might eaſily be diſtinguiſhed from the other three elements of fire, aire, and water. For the proper qualitie of the fire is heat; of the aire, is [i] moiſture; of the water, is coldneſſe; and of the earth, is drineſſe. Theſe qualities, I ſay, are moſt proper and peculiar to them: yet ſo, as the aire is not onely moiſt, but of a moderate heat, as being neareſt to the element of fire; the water not onely cold, but alſo moiſt, as coming neareſt to the nature of aire; and the earth, not onely drie, but ſomething cold, as being hoaſt or landlord to the water: and upon theſe terms the elements are combined together; there being in all an harmonious order; pointing to him, who, in number, weight, and meaſure, hath conſtituted all things.

I will not go about to prove that the earth is the centre of the world, for fear I ſhould be like to him, who diſputed whether ſnow were white: onely I will adde, that

[i] *Humiditas non eſt æſtimanda ex irrigatione, ſed ex propria definitione, quod ſcilicet difficulter alieno termino clauditur. Jam videmus aquam includi facilius certis limitibus quàm aerem, ergò &c. Quod autem aqua magis humectat, id fit propter craſſiorem ſubſtantiam. Cùm enim humiditas aquæ in denſiore materia hereat, ideo eſt magis unita, & proinde efficacior ad humectandum. Aeris verò humiditas tam craſſam ſubſtantiam, ſicut aqua, non habet, & propterea tantum madorem corporibus præbere nequit: & quod quandoque exiccare videatur, id non eſt per ſe, ſed per accidens, putà per exhalationes, &c.*

that even as an infant is potentially rationall by nature, but is made rationall in act, by youth or yeares; ſo it was with the earth, both before and after the drying of it. Unto which let this alſo be joyned, that the earth is not ſo arid or drie that it is void of all moiſture: for then it would be diſſolved and fall into duſt. But it is arid and dry, that it might be ſolid and firm; retaining in the mean time, even in the ſolid parts of it, ſuch a conveniencie of humour, that all parts may both be glewed together, and alſo have ſufficient nutriment for the things, which, like to a teeming mother, ſhe either bringeth forth, or nouriſheth in her wombe.

Thus was the earth prepared: and thus was it made a fit habitation for man to dwell on. But, as if man were not alwayes worthy to tread upon ſuch a ſolid foundation, we ſee it often ſhakes, and quakes, and rocks, and rends it ſelf: as if it ſhewed that he which made it, threatened, by this trembling, the impietie of the world, and ruines of thoſe which dwell upon the earth. For though the [k] efficient, [l] materiall, and [m] formall cauſes of an earthquake be naturall; yet the finall is the ſignification of an angry God, moved by the execrable crimes of a wicked people: according to that of David in the 18 Pſalme at the 7 verſe, *The earth trembled and quaked: the very foundations of the hills alſo ſhook and were removed, becauſe he was wroth.*

Fear chills our hearts. What heart can fear diſſemble
When ſteeples ſtagger, and huge mountains tremble?

The Romanes, in times paſt, commanded by publick edict, that prayers and ſupplications ſhould be made in time of an earthquake: but they muſt call upon no god by name, as on their other holy-dayes, for fear they miſtook that god unto whom it belonged.

And the moſt ancient of the Grecians called *Neptune* the ſhaker and mover of the earth; becauſe they ſuppo-

k *Efficiens eſt calor ſolis, & ſimul ignis ſubterraneus, quibus ſuppeditant tres ſuperiores planetæ.*

l *Cauſa materialis eſt ſpiritus ſeu vapor, in terræ viſceribus concluſus, exire contendens.*

m *Forma eſt ipſa concuſſio terræ & agitatio exhalationum terræ incluſarum.*

ſed that the cauſe proceeded from the fluctuations and flowings of waters up and down in the hollow places under ground.

Others thought that the ſhaking proceeded from the downfalls of ſubterranean dens or caves;and that ſometimes whole mountains ſunk in, and they cauſed the trembling.

The cauſe of earthquakes.

But by that which I ſaid before in the generation of windes, it appeareth, that what it is, which is the cauſe of windes above the earth, is alſo the cauſe of trembling and ſhaking in the earth. For when it happeneth that aire and windie ſpirits or Exhalations be ſhut up within the caverns of the earth, or have ſuch paſſage as is too narrow for them, they then ſtriving to break their priſons, ſhake the earth, and make it tremble. Now this impriſonment is ſaid to be cauſed thus;namely,when the earth,which is dry by nature,happeneth to be watred by continuall rains; then, not onely the pores and caverns thereof are ſtopped and cloſed up, but even the aire and Exhalations within the earth, are increaſed. To which purpoſe, Dr. *Fulk*, in the third book of his Meteors, writeth, ſaying, *The great caves and dens of the earth muſt needs be full of aire continually* (for there is no *vacuum* in nature:) *but when by the heat of the Sunne, the moiſture of the earth is reſolved, many Exhalations are generated, as well within the earth, as without; and whereas the places were full before, ſo that they could hold or receive no more except part of that which is in them be let out, it muſt needs follow that in ſuch countreys where the earth hath few pores, or elſe where they be ſtopped with moiſture, that there, I ſay, theſe Exhalations ſtriving to get out, do either rend the earth, or lift it up; that thereby either a free paſſage may be had, or elſe room enough to abide within.* I am perſwaded, that as in other windes, there be alſo in this, ſubterranean

raneân fires, which help to move and ſtirre the Vapours and Exhalations. Neither do I think that the Sunne is the onely cauſe of ſhutting the pores of the ground: for then, earthquakes would in a manner be as frequent and common, as dryings after a rain: Some of the other Planets therefore have their operation in this effect. Which (as Aſtrologers witneſſe) is *Saturn*, being of an aſtringent nature: and chiefly in earthie ſignes, muſt this be produced. For (ſay they)[n] if *Saturn* have the ſole dominion either in the revolution of the world, or in any great conjunction, or in the ecliptick place, and be ſtrong in earthie ſignes (ſuch as be *Taurus*, *Virgo*, and *Capricorn*) and ſhall behold the Moon, when ſhe is impedite, with a quadrate or oppoſite aſpect, then he foreſheweth that there will be an earthquake. And queſtionleſſe this is not altogether idle: For the influence of the Planets is divers, and may as well (according to their places and poſitions) work theſe effects, as have any power at all in the changes and alterations of the aire, in the producing of Meteors, cheriſhing of plants, and the like. And happily it is not *Saturn* onely, nor the bright beams of the Sunne, but other of the Planets alſo being conveniently placed and diſpoſed, which helpeth forward this ſad effect.

n *Origanus de effect. cap.* 9. *ex Haly.* &c.

Authours vary about the kindes of earthquakes; ſome making more, ſome fewer kindes.

The kindes of earthquakes.

Ariſtotle, De Meteoris lib. 2. *cap.* 8. maketh onely two; *Tremor*, and *Pulſus*; a *Trembling*, and a *Beating*. Some adde a third, which they call *Hiatus*. Others make ſeven. And ſome adde onely foure: to which may be joyned a fifth.

The firſt is, when the whole force of the winde driveth to one place, there being no contrary motion to let or hinder it. Many hills and buildings have been ruſhed down by this kinde of earthquake, eſpecially when

when the winde cauſing it, was ſtrong: For if it be a feeble winde, it onely looſeth or unfaſteneth foundations: if leſſe feeble, then without further harm, the earth onely ſhakes, like one ſick of an ague. This is called a laterall, or ſide-long ſhaking.

The ſecond is not ſo much laterall as perpendicular or upright; which is when the earth with great violence is ſo lifted up, that the buildings are like to fall, and by and by ſinketh down again: For after the winde, that cauſed the earth to ſwell, is broke out of priſon, the earth returneth to his old place even as it was before.

The third kinde is *Hiatus*, a gaping, rending or cleaving of the earth, one part being driven ſo farre from another, that whole towns, cities, hills, rocks, rivers, ſeas, and the like, are ſwallowed up and never ſeen again.

The fourth is a ſhaking that cauſeth ſinking; and is farre differing from the former: For now the earth ſplitteth not, but ſinketh; this being in ſuch places, where, though the ſurface of the ground be ſolid, yet it hath but a ſalt foundation; which being moiſtened with water driven through it by the force of the ſhaking Exhalation, is turned into water alſo. Thus was the Atlantick Ocean cauſed to be a ſea, whereas before it was an iſland; according to the [n] teſtimonie of famous *Plato*, who lived in his flouriſhing fame about 366 yeares before Chriſt was born: and before his time it was that this iſland ſunk.

n *Plat. in Timæo.*

A digreſſion touching the new found-world.

Where, by the way, in a word or two may be diſcuſſed, not ſo much how the late diſcovered parts of the world came to be peopled, as how at the firſt to be unknown.

Concerning which, this I think may be ſuppoſed, that *America* was ſometimes part of that great land which

Plato

Plato calleth the Atlantick iſland, and that the Kings of that iſland had ſome intercourſe between the people of *Europe* and *Africa*. Some have related that they were the ſonnes of *Neptune*, and did govern part of *Europe* and *Africa*, as well as of the ſaid iſland: in which regard there was knowledge of the late known parts long ago. But when it happened that this iſland became a ſea, time wore out the remembrance of remote countreys: and that upon this occaſion, namely by reaſon of the mud and dirt, and other rubbiſh of the iſland. For when it ſunk, it became a ſea, which at the firſt was full of mud; and thereupon could not be ſailed, untill a long time after: yea ſo long, that ſuch as were the ſea-men in thoſe dayes, were either dead before the ſea came to be cleare again, or elſe ſunk with the iſland: the reſidue, being little expert in the art of navigation, might, as neceſſitie taught them, ſail in ſome certain boats from iſland to iſland; but not venturing further, their memorie periſhed. And not onely ſo, but alſo thus: this iſland ſinking, might ſo damp up the ſea, that neither thoſe that were in theſe parts, did ever attempt to ſeek any land that wayes to the Weſtwards; nor yet thoſe who were remaining upon that part of the iſland that did not ſink, would ever attempt to ſeek any land unto the Eaſtwards: and ſo the one forgot the other.

More I might ſay touching this thing: but this (perhaps) is more then enough. Yet that ſuch an iſland was, and ſwallowed by an earthquake, I am verily perſwaded: and if *America* joyned not to the Weſt part of it, yet ſurely it could not be farre diſtant, becauſe *Plato* deſcribes it as a great iſland: neither do I think that there was much ſea between *Africa* and the ſaid iſland. But I leave this digreſſion and proceed.

The fifth kinde of earthquake is contrary to the former: for as before the ground ſinks down, ſo now it is

caſt up, like as in the ſecond kinde already mentioned: onely this is the difference, that now it returneth not to its place again, but remaineth a great mountain: an embleme whereof may be ſeen in the buſie mole caſting up hills in a plain ground. And note that if ſuch a riſing be in the ſea, it not onely cauſeth overflowings, but produceth likewiſe many iſlands, ſuch as were never ſeen before. And thus there may be five ſeverall kindes of earthquakes.

The attendants of an earthquake

Know alſo that an earthquake hath both his *Antecedentia*, and *Subſequentia.*

The *Antecedentia* are the ſignes which go before it, and ſhew that it will be.

The *Conſequentia* or *Subſequentia*, are the effects which follow after it, and ſhew that it hath been.

Signes of an earthquake.

As for the *Antecedentia*, or ſignes, they be of theſe ſorts chiefly.

Firſt, a great tranquillitie or calmneſſe of the aire, mixed with ſome cold: the reaſon of which is, becauſe the exhalation which ſhould be blowing abroad, is within the earth.

Secondly, the ſunne is obſerved to look very dimme certain dayes before, although there be no clouds: the reaſon of which is, becauſe the winde which ſhould have purged and diſſolved the groſſe aire, is taken priſoner and encloſed within the bowels of the earth.

Thirdly, the birds flie not, but ſit ſtill beyond their ordinary wont, and ſeem as if they were not fearfull to let any one come neare them: the reaſon of which is, becauſe either the pent exhalation ſendeth ſome ſtrange alteration into the aire, which ſlenderly breatheth out of ſome inſenſible pores of the earth; which it may do though the exhalation comes not out: or elſe it is that they are ſcarce able to flie for want of ſome gentle gales for their wings to ſtrike upon; it being a thing well known,

known, that birds flie more willingly, and cheerfully, when the aire is of ſuch a temper.

Fourthly, the weather is calm, and yet the water of the ſea is troubled and rageth mightily: the reaſon of which is, becauſe the great plentie of ſpirits or winde in the bottome of the ſea beginneth to labour for paſſage that way, and finding none, is ſent back again; whereupon ſoon after it ſhaketh the land. This is evermore a certain ſigne.

Fifthly, the water in the bottome of pits and deep wells is troubled, aſcending and moving as if it boyled, ſtinking, and is infected: the reaſon of which is, becauſe the exhalation being pent, and ſtriving to get forth, moveth ſome ſtinking mineralls and other poiſonous ſtuffe to the ſprings of thoſe waters; and they, with the ſtruggling exhalation, ſtirre and attaint them.

Sixthly, there is a long thin cloud ſeen in a cleare skie, either a little before ſunne-ſetting, or ſoon after: now this is cauſed by reaſon of the calmneſſe of the aire; even as *Ariſtotle* obſerveth, that in a quiet ſea, the waves float to the ſhore, long and ſtraight. I do not think that this alone can be any more then a very remote ſigne, unleſſe it be joyned with ſome of the other ſignes already mentioned: for although ſuch a cloud may be ſeen, yet every calm brings not an earthquake, neither are all places alike ſubject to them.

The laſt ſigne, and that which cannot but be infallible, is the great noiſe and ſound which is heard under the earth, like to a groning, or very thundering. And yet ſome ſay, that this is not alwayes attended with an earthquake: for if the winde finde any way large enough to get out, it ſhaketh not the earth. Now this noiſe is made by the ſtruggling of the winde under the earth.

Next after the *Antecedentia*, the *Conſequentia* of

Effects of earthquakes.

earthquakes would be conſidered; and theſe (as I ſaid) be their effects: which indeed be not ſo much the effects of the earthquake, as of the exhalation cauſing the earthquake.

The firſt whereof may be the ruine of buildings, and ſuch like things, together with the death of many people. About the 29 yeare before the birth of Chriſt, was an [p] earthquake in *Juria*, whereby thirtie thouſand people periſhed. In the fifth yeare of *Tiberius* Emperour of *Rome*, [q] thirteen cities of Aſia were deſtroyed in one night by an earthquake. Some ſay but twelve. *Lanq. chron.* In the *66* yeare of Chriſt, [r] three cities of Aſia were alſo, by the like accident, overthrown; namely, *Laodicea, Hieropolis*, and *Coloſſus*. Again, in the yeare of Chriſt 79, three [s] cities of *Cyprus* came to the like ruine: and in the yeare following was a great death of people at Rome. And in the yeare 114, [t] *Antioch* was much hurt by an earthquake: at which time, the Emperour *Trajan* being in thoſe parts, eſcaped the danger very difficultly. *Euſebius* placeth it in the ſecond yeare of the 223 Olympiad: and *Bucholcerus* ſetteth it in the yeare of Chriſt one hundred and eleven. *Euſebius* makes mention of another before this, in the 7 yeare of *Trajan*: & this was that, which in *Aſia, Greece*, & *Calabria*, overthrew nine ſeverall cities. About the yeare of Chriſt [u] 180, or 182, the citie *Smyrna* came to the like ruine: for the reſtauration whereof, the Emperour remitted ten yeares tribute. About the yeare of Chriſt 369, *Euſebius* again telleth of an earthquake, which was in a manner all over the world, to the great damage of many towns and people. The like was in the yeare 551: at which time, a quave of the earth ſwallowed a middle part of the citie *Miſia*, with many of the inhabitants, where the voice of them that were ſwallowed, was heard crying for help and ſuccour. He alſo, in the yeare 562, men-

p *Lanquet* in his chron.

q *Tacit. lib. 2. annal. Euſeb. chron.*

r *Euſeb. ibid.*

s *Idem.*

t *Lanquet* in his chron.

u *Euſeb.*

562, mentions another, wherewith the citie *Berintho* was overthrown; and the iſles, called *Coy*, grievouſly ſhaken. Again, he writeth of a great tempeſt and earthquake in the yeare 1456, wherein (as he hath it out of *Chronica chronicorum*) there periſhed about *Puell* and *Naples*, 40 thouſand people. Alſo,[x] in the yeare 1509, the citie of *Conſtantinople* was ſorely ſhaken, innumerable houſes and towers were caſt to the ground, and chiefly the palace of the great Turk; inſomuch that he was forced to fly to another place. Thirteen thouſand periſhed in this calamitie. Again, in[z] the yeare 1531, in the citie *Lisbon*, a thouſand foure hundred houſes were overthrown (or, as ſome ſay, one thouſand five hundred) and above ſix hundred ſo ſhaken that they were ready to fall, and their churches caſt unto the ground, lying like heaps of ſtones. This earthquake was attended with a terrible plague and peſtilence. And thus do theſe examples confirm the firſt effect.

x Fromond. Met. *lib.* 4. but Lanquet nameth the yeare 1508.

z *Idem.*

A ſecond is the turning of plain ground into mountains, and raiſing up of iſlands in the ſea, as *Thia*, in the time of *Plinie*; and *Theraſia*, which (as *Seneca* witneſſeth) was made an iſland even in the ſight of the mariners, or whileſt they were looking on. Thus alſo *Delos*, *Rhodos*, and ſundry others, came to be iſlands.

A third effect is the throwing down of mountains, and ſinking of iſlands, and ſuch like. Thus periſhed the Atlantick iſland, as I ſhewed before: yea thus alſo periſhed, by the breach of the earth, thoſe famous cities of *Achaia*, viz. *Helice* and *Buris*: of which *Ovid* writeth thus,

Si quæras Helicen & Burin, Achaidas urbes,
Invenies ſub aquis: Et adhuc oſtendere nautæ
Inclinata ſolent cum mœnibus oppida merſis.

If thou would'ſt *Helice* and wiſh'd *Buris* finde,
Th'Achæan cities, (never loſt in minde)

The water hides them: and the ſhipmen ſhow
Thoſe ruin'd towns and drown'd walls as they row.

A fourth effect is the cutting the neck of ſome *Iſthmus* from the continent: and thus *Britain* was [a] ſevered from *France*; *Africa* from *Spain*; and *Sicilie* from *Italie*, with the like.

[a] *Verſtegan*, in his reſtitution, *cap.* 4.

A fifth is the tranſlation of mountains, buildings, trees &c. unto ſome other places: of which we may finde teſtimonie in good authours of credit. *Albertus* calls this motion, a vection or a carrying.

A ſixth is the breaking out of rivers and fountains in ſome new places: which happeneth by the breaches made in the earth amongſt water-ſprings, through the violence of the Exhalation.

A ſeventh is plague and peſtilence, cauſed by the poyſonous fume of the Exhalation: ſuch as was in the yeare 1531, before mentioned, when *Lisbon* was ſo ſtrangely ſhaken: For putrid Exhalations infect the Aire; and the Aire, us.

An eighth effect is famine; which may be by reaſon of the ſhocks and ſhakings of the earth, making it thereby become as it were ſick and ſteril. Or elſe it may be by reaſon that the long pent vapour carries with it a blaſting hurtfull fume.

A ninth is ſometimes the diſcovering of new burning hills; which may happen when the abundance of Brimſtone and ſulphurous matter that is under ground, is ſet on fire through the violent motion of the Exhalation: and ſo it breaketh forth.

A tenth is (or elſe ſhould be) the fear of a Deitie. For if it be the Lords will by this work of his, in his handmaid nature, to ſhake it, no land can be ſure, no place ſo ſtrong that can defend us. Nay, the more ſtrong, the more dangerous: For the higher, the greater fall. With the wiſe man therefore I will ſay, *I know that whatſoever*

God doth, it ſhall be for ever: nothing can be put to it, nor any thing taken from it: And God doth it, that men ſhould fear before him, Eccleſiaſtes 3. 14.

Laſt of all, this I will adde: and it is a ſaying of one, well worthy to be remembred. *The whole earth* (ſaith he) *is nothing but the centre or point of the world. This is all the matter of our glorie; this our ſeat. Here we bear honours; here we exerciſe rule; here we deſire riches; and here mankinde troubleth and turmoileth himſelf: here we wage warre, yea civil warre; and make the very earth become ſoft and fat with the crimſon bloud of our mutuall ſlaughters. This is that place where we drive away from us our neare neighbours, ditch in his grounds to ours, and ſo meaſure our demeans by driving others from our coaſts, that thereby we may be like to him who can freely triumph in any part of the earth. But what of all this? When time, by ending us, hath put a meaſure to our covetouſneſſe; then, after all, what a ſmall portion ſhall he obtain, who is dead and gone from all?* O amatores mundi, cujus rei gratiâ militatis? *Oh ye lovers of the world, for the ſake of what thing is it that you ſtrive?*

Let any judge, whether this lower Ball
(Whoſe endleſſe greatneſſe we admire ſo all)
Seem not a point, compar'd with th'upper Sphere,
Whoſe turning turns the reſt in their career.
Lo then the guerdon of your pinching pain:
A needles point, a mote, a mite you gain:
A nit, a nothing (did you all poſſeſſe)
Or, if then nothing any thing be leſſe.
„Why then ſhould man this nothing thus reſpect,
„As he, for it, Heav'ns Kingdome ſhould neglect?
If thou feed'ſt well, if feet and back be clad,
What more to thee can Kingly riches adde?
Not houſe, not land, not heaps of gold and treaſure,
(When ſickneſſe of thy body hath took ſeiſure)

Can

Can thence remove it, neither canſt thou finde
A force in them to cure a troubled minde.

Which if man could well remember, he would ceaſe to ſpend himſelf for nothing; and willingly ſubſcribe to the lamentation made by the [a] Poet, under the perſon of *Hecuba*, upon the ruine of Troy; ſaying,

[a] *Seneca trag.*

Quicunque regno fidit, & magnâ potens dominatur aulâ,
Animúmque rebus credulum lætis dedit,
Me videat, & te, Troja: non unquam tulit
Documenta ſors majora, quàm fragili loco
Starent ſuperbi ——

Which is (as [b] one tranſlates it) thus,

[b] Barkley in his *Summ. bonum*, edit. 2. lib. 2.

He that his confidence puts in a Crown,
Or in his Palace potently doth frown,
And takes, with proſp'rous fortunes, all his joy;
Let him but look on me, and thee, O Troy.
Chance, by no greater influence, could declare,
In what a fickle ſtate all proud things are.

To this purpoſe alſo ſerveth that Epigram of *Auſonius*, wherein he feigneth *Diogenes* to ſee the rich King *Creſus* among the dead: and there *Diogenes* himſelf hath as good an eſtate as he.

Effigiem Rex Crœſe tuam, ditiſſime Regum,
Vidit apud manes Diogenes Cynicus.
Conſtitit; útque procul ſolito majore cachinno
Concuſſus, dixit, Quid tibi divitiæ
Nunc proſunt, Regum Rex O ditiſſime, cùm ſis
Sicut ego ſolus, me quoque pauperior?
Nam quæcunque habui, mecum fero: cùm nihil ipſe
Ex tantis tecum, Crœſe, feras opibus.

Amongſt the ghoſts Diogenes beheld
Thee Creſus, of all kings, with moſt wealth ſwell'd.
This 'twas he did conclude; and as one mov'd
With greater laughing then his wont behov'd,

He

He farre off ſaid, Thou richeſt once of kings,
Speak; (to this place below) what profit brings
All thy late pomp? for ought that I now ſpie,
We are alike; nay thou more poore then I.
For nought was what I had; I brought that ſtore:
Thou hadſt much wealth; yet now then I no more.

Like unto which, is that example of him, who lying at length upon the ground, and riſing, by chance eſpied the print that his bodie at the full length made: he breaks out into this, or the like ſpeech, ſaying, Lo here, what a ſmall piece of ground will ſerve us when we die! and yet living, we ſeek to conquer kingdomes. To which we may joyn that worthy command of famous *Saladine*, who being ready to depart this life, called for his ſtandard-bearer, giving him in charge that he ſhould go and take his winding ſheet, and hanging it on his pike, he ſhould go out with it, and tell to his camp, that of all his triumphs, of all his conqueſts, and of all his victories, he had nothing left unto him now but onely that to wrap up his bodie for his buriall.

Are all men mortall? are all born to die?
Can none on earth poſſeſſe eternitie?
Sure, he that looks upon the worlds frail ſtage,
And views the actions of this preſent age,
He cannot but with eyes indiff'rent ſee
That mortalls here would fain immortall be.
For by the ſymptomes is the ſickneſſe found;
And by the thoughts that equalize the ground,
Tranſcending rarely from that pitch, on high
Up to the court above the azure skie,
No hard thing 'tis, a judgement true to give,
That ſuch deſcendents here would ever live.
But ſouls, inſpired with the gales of grace,
Eſteem the witching world no reſting place;
A place of travell, not a place of ſtay;

Such well devoted pilgrims count this way:
For ſure the world is but a gaudie ball,
Whoſe quilt is vanitie, no joy at all.
Rouze then thy minde (witcht mortall) from the ground,
Think of that place where true joyes may be found:
Choak not thy ſoul with earth: for thou doſt winne
Nought for thy care, but puniſhment of ſinne:
Rouze then (I ſay) thy thoughts; think what it is
To be partaker of eternall bliſſe.
For when the drie-land God did make appeare,
'Twas not that man ſhould think his heaven's here.

Sect. 4.

Concerning the ſprouting, ſpringing, and fructification of the earth.

I Am now come to that which I called the third and laſt part of this dayes work: and it is the budding, and fructification of the earth. For after God had diſcovered it, and made it drie, he commands it to bring forth every green thing; as graſſe, herbs, trees, &c. by which he cauſed it to change a mourning, black, and ſad-ruſſet weed, into a green, gallant, rich, enameled robe; and, lady-like, to paint it ſelf in braverie; having green graſſie locks, whoſe hair doth not more adorn then profit; whoſe roſie cheeks are not more admired, then, for their vertues, wiſht: whoſe frank, free, fragrant, fruitfull breaſts do ſo nouriſh her own children, ſprung from her never reſting wombe, that they again adde nouriſhment to other things; both man and beaſt gaining by her never ending labours. For God, by ſaying *Let it bring forth*, did not onely give an abilitie or power of bringing forth, but brought that power alſo into act; cauſing this act to be ſo begun, that it might be continued from thence to the very end of time. And to this purpoſe we ſee it is,

that the herb muſt bring forth ſeed, and the tree bear fruit. For God would not that either the herb ſhould be ſterill, or the tree barren; but with their ſeeds and fruits, according to their kindes: by which it was, and is, that their kindes both were, and are preſerved. For firſt we ſee the buds ſpring up; theſe at the firſt are tender, but afterwards, growing a little older, we call them herbs: the herbs, being of convenient growth, bring forth flowers: under the flowers,grow and wax ripe the ſeeds: the ſeeds being ripe and caſt into the ground, do again bring forth the tender buds;and they herbs in their ſeverall kindes; and ſo on, as before: by which you may ſee, how God hath conſtituted a never ending courſe in nature; being the ſame in the trees alſo, as well as in the herbs. For their tender branches do not grow to be woodie, but by little and little; then they aſpire to the height and name of trees; and being trees,they bloſſome; from their bloſſomes ariſe fruits; and within their fruits be ſeeds; and in thoſe ſeeds reſteth the power of other ſprouts, or tender ſhoots.

Now ſome would obſerve from hence, that here is mention made of three kinde of plants and fruits that the earth bringeth forth; viz. the bud, the herb, and the tree: which by others are diſtinguiſhed into herbs,ſhrubs,and trees. But I rather think the bud is to be exempted, and not taken as one peculiar thing proper to a kinde of its own. For (as I have already ſhewed) that which is the bud, may be taken, either for the tender ſhoot of any herb or graſſe, or elſe for the tender and unwoodie branches of ſhrubs and trees: for that which they be in their ſprouting, they are not in their perfection: neither are they in their perfection what they be in ſprouting.

And is it not an endleſſe wonder to ſee the varietie, growth, power and vertue of theſe, the earths rich liveries? ſome great, ſome leſſe; ſome little, ſome low; ſome

The varietie and vertue of herbs and trees.

large, ſome long; ſome, whoſe vertue excells in this; ſome, whoſe power appeares in that: ſome hot and moiſt; ſome cold and drie: ſome hot and drie; ſome cold and moiſt. Of all which I purpoſe to give my reader a taſte, that thereby he may be driven to admire the reſt.

Herbs hot and moiſt.

Baſil.

AND firſt of all I begin with *Baſil:* in Greek it is ὤκιμον, or βασιλικὸν; in Latine, *Ocimum*, *Baſilicum*, or *Regium*. This is an herb hot in the ſecond degree, and ſomewhat moiſt. [a] *Galen* would not that this herb ſhould be taken inwardly, becauſe it hath a kinde of ſuperfluous moiſture joyned to it; but being applied outwardly, it is good to digeſt, diſtribute, or concoct. We in England ſeldome or never eat it: yet we greatly eſteem it, becauſe it ſmelleth ſweet, and (as ſome think) comforteth the brain. But know that weak brains are rather hurt then holpen by it; for the ſavour is ſtrong: and therefore much ſmelled unto, it procureth the headach: and (as the authour of the haven of health affirmeth out of *Hollerius*) *Baſil* hath a ſtrong propertie beyond all theſe. For (ſaith he) a certain Italian, by often ſmelling to *Baſil*, had a ſcorpion bred in his brain, and after vehement and long pain he died thereof. Moreover, that we ſhunne the eating of it, is alſo neceſſary; becauſe, if it be chewed, and laid afterwards into the ſunne, it engendreth worms. Mr *Thomas Hill*, in his art of gardening, teſtifieth that the ſeeds of *Baſil*, put up into the noſe, procure ſneezing; and being mixed with ſhoemakers black, do take away warts, killing them to the very roots.

[a] Ger. in his Herb. out of *Galen* ſimp. *lib.* 8.

A ſcorpion bred in the brain by the ſmell of *Baſil*.

A medicine for warts.

Mallows.

The wilde *Mallow* is called in Greek ἄκοπος, ſignifying *a mitigatour of pain:* and in Latine, it is *Malva ſylveſtris.* It hath a certain moderate and middle heat in it, together with ſome moiſture. The leaves ſtamped with a little hony, and one anointed with them ſhall not be ſtung by bees, waſps, or the like.

How to keep bees from ſtinging.

Borage

Borage is a common herb, and yet ſome account a fourefold difference in it; as thus, *Garden Borage, white-flowred Borage, never dying Borage* (ſo called, becauſe fair blew flowers, ripe ſeeds, and buds for new flowers, may be ſeen all at once on it) and alſo another kinde of *Borage*, which is little differing from the former, excepting that the flowers look fair and red. This herb is hot and moiſt in the firſt degree. *Borage.*

Unto this may be joyned *Bugloſſe*, which, according to *Dioſcorides* (as Mr. *Gerard* writeth) is the true *Borage*: whereupon,[b] ſaith he, many are of an opinion that the one is but a degenerate kinde from the other. In the Greek it is called βέγλωσσον; and in the Latine, *Lingua bubula*. *Plinie* giveth a reaſon of this name; which is, becauſe it is like an oxes tongue. Moreover, he likewiſe calleth it *Euphroſynum*, from the effect; namely, becauſe it maketh a man merry and joyfull: For εὐφροσύνη is *Lætitia*; and εὐφρόσυνον ſignifieth ſome ſuch thing as doth *lætitiam adferre*, or bring mirth: which he witneſſeth of this herb to be true, ſaying that being put into wine it increaſeth the delights of the minde. *Plin. lib.* 25. *cap.* 8. *Bugloſſe.* [b] *Herb. pag.* 654. Good to make one merrie.

The like is alſo ſaid of *Borage*; *Ego Borago gaudia ſemper ago.* In which regard the diſtilled water of *Borage* or *Bugloſſe*, with the leaves and flowers, being drunk with wine, cannot but be good, comfortable, and pleaſant for the brain and heart: it increaſeth wit and memorie, engendreth good bloud, and putteth away melancholy and madneſſe, as the authour of the haven of health affirmeth. An excellent water made of Borage, &c. being good againſt melancholy and ſadneſſe.

The herbs following are hot and dry.

Next unto *Bugloſſe*, I mention *Balm* or *Baum*, becauſe the water of it alſo being drunk in wine, is good to comfort the heart, to drive away all melancholy and ſadneſſe: in which regard it is not amiſſe to have them *Balm.*

Bees take great delight in Balm.

c Lib. 21. cap. 20.

all diſtilled together. Moreover I finde it recorded that the hives of bees being rubbed with the leaves of this herb, cauſeth the bees to keep well together, and allureth others to come unto them: For, ſaith[c] *Plinie*, they delight in no herb or flower more; and therefore they fly not away from ſuch hives as are either rubbed with the leaves, or anointed with the juice of this herb: and hereupon it cometh to be called *Apiaſtrum*; which is as much as to ſay, *The bees ſtarre*, or *guide*. For when they are ſtrayed farre from home, by the help of this herb they finde their way again. But the common Latine name is *Meliſſa*, or *Citrago*. It is alſo called in ſome authours, *Meliſſophyllum*, and *Meliphyllon*.

A medicine for the Mother.

This is an herb which is hot and dry in the ſecond degree; & good to be either eaten, or ſmelled unto by them who are ſubject to the Mother. *Gerard.*

Balm is good to cloſe up wounds.

Plinie writeth a ſtrange ſecret in a kinde of *Balm*, which he calleth *Iron-wort*; viz. that the leaves cloſe up wounds without any perill of inflammation: and alſo that it is of ſo great vertue (which you may beleeve as you liſt) that though it be but tied to his ſword which gave the wound, it ſtancheth the bloud.

Sage.

Sage, called in Greek ἐλελίσφακος, is *Salvia* in the Latine: and amongſt the many kindes which ſome obſerve, there are principally two; the greater, and the leſſer. Some ſay it is hot and dry in the third degree: ſome name not the third ſo much, as the end of the ſecond: others determine that it is hot in the firſt degree, and dry in the ſecond.

This is an herb which hath many and ſingular properties; inſomuch that the Salern ſchool makes this demand,

Cur moriatur homo cui Salvia creſcit in horto?

As if it ſhould be ſaid, ſuch is the vertue of *Sage*, that

if it were poſſible, it would cauſe *Clotho* evermore to hold the diſtaffe, and *Lacheſis* to ſpin perpetually; yea, *Atropos* muſt forbear to cut in two the thread of life: ſuch a deſire hath *Sage* to make a man immortall.

The Latine and Engliſh names ſpeak greatly for the commendation of it. For *Salvia* takes the name of ſafety; and *Sage* is a name of wiſdome.

Sith then the name betokens wiſe and ſaving,
We count it natures friend, and worth the having.

Beſide theſe names, ſome call it the *Holy herb*, becauſe women with childe, if they be like to come before their time, and are troubled with abortments, do eat thereof to their great good: For it maketh them fruitfull, retaineth the birth, and giveth life unto it. *Ger.* in his Herball. Sage is good for childe-bearing women.

Moreover, *Sage* is ſingular good for the brain and head, quickeneth the memorie and ſenſes, ſtrengtheneth the ſinews, is good againſt the palſie, and ſtayeth a ſhaking in any part of the body. The moſt of which properties are expreſſed in theſe two verſes following, Good for the brain. Good againſt the palſie.

Salvia confortat nervos, manuúmque tremorem
Tollit, & ejus ope febris acuta fugit.

Sage makes the ſinews ſtrong, the palſie cures;
And by its help no ague long endures.

Alſo, the juice of this herb drunk with honie, is good for thoſe that ſpit and vomit bloud: for it ſtoppeth the flux thereof incontinently. Good againſt ſpitting of bloud.

And laſt of all, although I omit many vertues in this herb, yet one thing muſt not be forgotten. The leaves of the red *Sage* put into a wooden diſh, wherein are put very quick coals, with ſome aſhes in the bottome of the diſh to keep the ſame from burning, and a little vineger ſprinkled upon the leaves lying upon the coals, and ſo wrapped in a linnen cloth, and holden very hot unto the ſide of thoſe that are troubled with a grievous ſtitch, Good againſt a ſtitch in the ſide.

they

they take away the pain preſently, and alſo greatly help the extremitie of a pluriſie. *Ger.*

Rue, or *Herb-grace*, in Latine is called *Ruta*, in Greek πήγανον; which is, *quòd caliditate ſuâ* πήγνυσι τὸ σπέρμα, *ſemen quaſi congelat*. If it be wilde *Rue*, and not ſuch as groweth in gardens, then it is hot and dry in the fourth degree: but garden *Rue* is a degree cooler and moiſter. [d] *Plinie* writeth that there is ſuch friendſhip between it and the fig-tree, that it proſpereth no where ſo well as under that tree; delighting alſo (as he affirmeth) to grow in ſunnie places. It is an enemie to the Toad, as being a great enemie to poyſon: And excellent is that medicine approved by *Mithridates*, King of *Pontus* in *Aſia*, who lived in the dayes of *Pompey*, viz. that if any do eat faſting two dry wall-nuts, as many figs, and twentie leaves of *Rue*, with one grain of ſalt, nothing which is venimous may that day hurt him; it being alſo an excellent preſervative againſt the peſtilence. Which alſo the Salern ſchool teacheth, in theſe words,

[d] Lib. 19. cap. 8.

An antipathy between the Toad and Rue.

Good againſt poyſon.

Allia, Ruta, Pyra, & Raphanus, cum Theriaca, Nux,
Præſtant antidotum contra lethale venenum.

Garlick, Rue, Pears, and Radiſhes will make,
With Triacle and Nut,
An antidote, which will fell poyſon ſlake,
And doore of danger ſhut.

Moreover, *Schola Salerni* ſetteth down ſome other properties of it, thus;

Ruta comeſta recens, oculos caligine purgat;
Ruta viris coitum minuit, mulieribus auget.

Upon which occaſion, one once gave it this commendation,

Rue is a noble herb, to give it right:
For, chew it faſting, it will purge the ſight.
One qualitie thereof yet blame I muſt:
It makes men chaſte, and women fills with luſt.

Good for the ſight.

Rue makes men chaſte, but not women.

Which

Which laſt propertie is cauſed, in regard that the nature of women is wateriſh and cold: now *Rue* (we know) heateth and drieth; whereupon it ſtirreth them the more to carnall luſt: but it diminiſheth the nature of men, which is of temperature like to the aire, viz. hot and moiſt; working thereupon a contrary effect from that which it doth in women.

Alſo, for thoſe who are feeble in their ſight, let them diſtill *Rue* and white roſes together, and putting the water thereof into their eyes, it will open their windows and let in more light. To which joyn alſo this other experiment, taken out of *Schola Salerni*; A precious water for the eyes.

Feniculus, Verbena, Roſa, & Chelidonia, Ruta,
Ex iſtis fit aqua quæ lumina reddit acuta.
Fennell, Vervine, Roſe, Celandine and Rue,
Do water make which will the ſight renew.

What other properties are pertinent to it, may be ſeen at large in *Plinie, lib.* 19. *cap.* 8. *& lib.* 20. *cap.* 13. As alſo in *Gerard*, and ſuch others as have ſet forth herballs.

I will adde therefore but one thing more; namely that the weeding of this herb with bare hands whileſt the dew hangeth on the leaves, doth cauſe dangerous bliſters and ſores; which may again be helped with ſallet oyl or the juice of hemlock, as Mr *Thomas Hill* in his art of gardening hath declared. A note for garden-weeders.

Dill is called in Greek ἄνηθον, in Latine *Anethum* and *Anetum*; and in Engliſh, ſometimes *Anet* as well as *Dill*. It bringeth forth flowers and ſeeds in Auguſt; and, as ſome write, it is hot and drie in the ſecond degree: but *Gerard*, out of *Galen*, affirmeth, that it is hot in the end of the ſecond degree, and drie in the beginning of the ſame, or in the end of the firſt degree. The decoction of the tops of this herb dried, together with the ſeed being drunk, provoketh urine, allayeth gripings, hickets, and windineſſe; engendreth milk in nurſes breaſts, *Dill.* Dill is good to expell winde, provoke urine, engender milk in nurſes breaſts.

with ſuch like other ſecrets. And of the green herb it is ſaid, that it procureth ſleep, ſound, and ſecure; according to which we have an old ſaying, that

Whoſoever weareth Vervine or Dill,
May be bold to ſleep on every hill.

An old cuſtome.

And from hence haply it was, that garlands made of this herb were uſed to be worn at riotous feaſts, that thereby they might not onely ſleep, but ſleep without danger.

Roſemarie.

Roſemarie, which ſome call the garland roſe, or in Latine *Roſmarinus coronaria*, becauſe, in times paſt, women have been accuſtomed to make garlands or crowns of it, is an herb which is hot and drie in the ſecond degree, and of an aſtringent or binding qualitie. The Greeks call it λιβανωτὶς, from λίβανος, *Thus*, or *arbor thurifera*; and ſo alſo [e] *Plinie* nameth it, becauſe it hath a root like to the frankincenſe tree; or becauſe the flowers ſmell much like to turpentine, or frankincenſe: which flowers, if they be diſtilled, and if a few cloves, mace, cinamon, and a little anniſeed be ſteeped in their water for a few dayes together, and drunk at morning and evening firſt and laſt, it taketh away the ſtench of the mouth and breath, and maketh it very ſweet, quickening the ſenſes and memorie, ſtrengtheneth the ſinewie parts, and is beſt for thoſe who have a cold moiſt brain.

e *Lib.* 19. *cap. ult.*

Good againſt a ſtinking breath.

To make the face fair.

The ſame wine that *Roſemarie* and the flowers have been ſodden in, is good to waſh the face and hands that they may look fair and cleare.

To prevent the palſie, and ſtrengthen the ſtomack.

To cure melancholy.

Alſo the conſerve of *Roſemarie* flowers, taken every morning faſting, is good againſt tremblings, faintings, palſies, &c. helping thoſe who have a trembling at the heart, or are troubled with a dumbe palſie, or are ſubject to vomit up their meat. And for dull melancholy men, take the * flowers and make them into powder, binde them to the right arm in a linen cloth, and this powder (by

* Note alſo that the flowers boiled in Goats milk, are good for the Ptiſsick. You muſt keep covered, and drink it cold.

(by working upon the veins) ſhall make a man more merrie and lightſome then ordinary. Take alſo the rinde of the *Roſemarie* and make powder thereof, then drink it in a little wine, and it helpeth you of the poſe or ſtuffing in the head, if it proceed from the coldneſſe of your brain. Alſo the wood of the ſtalk burnt to coals, and made into powder, and put into a linen cloth, is excellent to rubbe the teeth that they may look white, and to kill the worms in them if there be any, or to keep them from breeding if there be none. Theſe, and ſundry other, are the properties of *Roſemarie*.

To cure a ſtuffing in the head.

To ſcoure the teeth, and kill the worms in them.

I could wiſh that there were a greater plentie of this herb in *England* then there is. *France* hath great ſtore; inſomuch that at *Provence* it is uſed for a common fuell, the unlaboured grounds do ſo abound with it.

Of *Aconite* or *Wolf-bane* there be many kindes; and the forces of them all are extreamly pernicious and poiſonſome: for it is reported that if either man or beaſt be wounded with an arrow, knife, ſword, or any other inſtrument dipped in the juice of this herb, they die incurably within half an houre after.

Wolf-bane. An incurable poiſon.

And know that it is called *Wolf-bane*, becauſe men hunting for wolves, uſed to poiſon pieces of raw fleſh with the juice of this herb, and lay them as baits, on which the wolves eating, die preſently.

It hath a root like a ſcorpion, ſhining within like alabaſter. Poets feigne (becauſe it is ſuch a venimous herb) that *Cerberus*, the three-headed dog of hell, being dragged up in a chain of Adamant by *Hercules*, did caſt ſome of his venime upon it, whereby it became ſo venimous.

Yet nevertheleſſe, as great and deadly a poiſoner as it is, the juice of it cures the burning bite of ſtinging ſerpents, if it be taken and applied to the place grieved. Whereupon *Du Bartas* calleth it

A ſtrange propertie in a poiſoning herb.

A valiant venime, and couragious plant,

Diſdainfull poiſon, noble combatant,
That ſcorneth aid, and loves alone to fight,
That none partake the glorie of his might.
For if he finde our bodies 'fore-poſſeſt
With other poiſon, then he let's us reſt,
And with his rivall entreth ſecret ſtrife,
By both whoſe deaths man keeps his wiſhed life.

Flea-bane.

Mullet, or *Flea-bane*, in Greek κονύζα, in Latine *Conyza*, is hot and drie in the third degree.

Good to drive away gnats and fleas, &c.

This herb burned, and ſmoked where flies, gnats, fleas, or any venimous things are, doth drive them away.

Ladies mantle. An herb for maids.

Ladies mantle, or great *Sanicle*, is an herb of a drying nature. It is good to keep down maidens paps or dugs; and when they be great and flaggie, it maketh them leſſer and harder. *Ger. Herb. pag.* 803.

Butterwort. How ſheep may catch a rot.

Butterwort is a kinde of *Sanicle*; and it is hot and drie in the third degree. It is reported that when ſheep eat of this herb (which is but when the want of other meat compells them) they then catch a rot.

An excellent herb for farmers.

Yet neverthele ſſe, if it be bruiſed, the juice makes a good ointment for the dugs of cattel or kine, when they be either bitten by any venimous worm, chapped, rifted, or hurt by other means. It is requiſite that farmers and husbandmens wives ſhould be well acquainted with this herb; as alſo that ſhepherds ſhould know what ground aboundeth with it, that thereby they may prevent a miſchief in their flock.

Horehound

Horehound, called in Greek πράσιον, in Latine *Marrubium*, is an herb hot in the ſecond degree, and drie in the third.

A cure for a cough of the lungs.

Saffron.

The ſyrupe of this herb doth wonderfully and above credit eaſe ſuch as have lien ſick very long of a cough or conſumption of the lungs: the like doth *Saffron*, bringing breath again, when one is even at deaths doore, if ten or twentie grains at the moſt (for too much is hurtfull) be given

given in new or ſweet wine. *Saffron* is hot in the ſecond degree, and dry in the firſt. And of it thus writeth the Salern[f] ſchool,

Take Saffron, if your heart make glad you will;
But not too much, for that the heart may kill.

f Tranſ. by *Sir* John Harington.

Hyſſop.

Hyſſop, in Greek ὕσσωπος, and in Latine *Hyſſopus*, is an herb hot and dry in the third degree; whoſe chief vertues are briefly comprehended in theſe few verſes of *Schola Salerni*,

Hyſſop purgeth the breaſt, and puts a good colour in the face.

Hyſſopúſque herba eſt, purgans è pectore phlegma:
Ad pulmonis opus cum melle coquenda jugata.
Vultibus eximium fertur præſtare colorem.

The Hyſſop is an herb to purge and cleanſe
Raw flegmes and hurtfull humours from the breaſt:
The ſame unto the lungs great comfort lends,
With hony boild: but farre above the reſt,
It gives good colour, and complexion mends,
And is therefore with women in requeſt.

Mr. *Gerard* ſetteth down the vertues of it thus;

Good for the throat.

1. A decoction of *Hyſſop* made with figs, and gargled in the mouth and throat, ripeneth and breaketh the tumours and impoſtumes of the mouth and throat, and alſo eaſeth the difficultie of ſwallowing, coming by cold rheums.

Good for the lungs and breath.

2. The ſame made with figs, hony, water, and Rue, and drunk, helpeth the inflammation of the lungs, the old cough, ſhortneſſe of breath, and the obſtructions or ſtoppings of the breaſt.

Good againſt worms.

3. The ſyrupe or juice taken with the ſyrupe of vinegar, purgeth tough and clammie flegme by ſtool, and driveth forth worms, if it be eaten with figs.

4. And the water (ſaith he) is alſo good for the forenamed diſeaſes; but nothing ſo ſpeedie and forcible.

Water-Creſſes.

Water-Creſſes, which the Latines call *Naſturtium aquaticum*, or *Siſymbrium aquaticum*, and the Greeks σίον, are

Good againſt the green ſickneſſe.

are of nature hot and drie. They help maidens of the green ſickneſſe, and ſend their accuſtomed lively colour again into their faces, if they take them thus, viz. chop them and boyl them in the broth of fleſh, and uſe to eat ſuch broth for a moneth together at morning, noon, and night.

Good againſt the ſtone.

Alſo being taken in the ſame manner they provoke urine, waſte the ſtone and drive it out. *Ger. pag.* 201.

Sothern-wood.

Sothernwood, in Greek ἀβρότονον, which name it alſo retaineth in the Latine, is hot and dry in the end of the third degree.

Good to make the beard grow.

It is ſaid that the aſhes of burnt *Sothernwood* brought to a powder, & tempered with the oyl of radiſh or ſome other thin oyl, cure the pilling of the hair from the head, and cauſe the beard to grow quickly. The ſame doth alſo the juice of this herb mixed with the oyl of *Dill.*

A ſtrange ſecret.

Plinie writeth (which you may beleeve as you liſt) that a branch of this herb laid under the pillow of the bed, doth greatly move a deſire to the venereall act; & is of force againſt all charms that have been to hinder it. *Plin. lib.* 21. *cap.* 21.

One Berrie

Good againſt peeviſhneſſe.

There is an herb called *Herba Paris*, *One Berrie*, or *Herb-Truelove*; ſo called becauſe at the top of the ſtalk it beareth foure leaves like unto a true-lovers knot. This herb is good for ſuch as are peeviſh & childiſhly fooliſh for they know not what; let them drink half a ſpoonfull of the powder, or of the berries at morn & even. *Ger.*

Dittanie.

Dittanie, called of the Greeks δίκταμνος, and in Latine *Dictamnum*, is an herb hot and dry. There are two kindes of it; *Dittanie* of *Crete*, and *Baſtard Dittanie.*

g *Lib.* 25. *cap.* 8.

An herb for the wounded Deer.

That which is the true *Dittanie*, is of wonderfull operation. [g] *Plinie* ſaith that it groweth onely in *Crete* or *Candie*; and is beneficiall to the wounded Deere: For the wilde Goats and Deere in *Candie*, when they be wounded with arrows or darts, do ſhake them

out by eating of this herb; and it alſo healeth their wounds.

The *Baſtard Dittanie* hath vertues ſomewhat like to the firſt, but not of ſuch great force. And of the firſt, *Du Bartas* writeth thus,

But I ſuppoſe not that the earth doth yeeld
In hill or dale, in forreſt or in field,
A rarer plant then Candian Dittanie,
Which wounded Deere eating, immediately
Not onely cure their wounds exceeding well,
But 'gainſt the ſhooter do the ſhaft repell.

Cummin, in the Greek κύμινον, and in Latine *Cuminum*, is hot and dry in the third degree. *Cummin.*

The ſeeds of this herb ſodden in water, if the face be waſhed with the ſame, do cauſe it to be cleare and fair: yet uſe it not too often; for then it breedeth paleneſſe: it is good therefore for ſuch as be high-coloured, or have too much bloud in their cheeks. *To make the face fair.*

Moreover, chew this ſeed in your mouth after the eating of onions, garlick, or leeks, and it taketh away their ſmell.

Alſo, it ſtoppeth a bleeding at the noſe, being tempered with vineger and ſmelt unto. *For bleeding at the noſe.*

Mint is in Greek ἡδύοσμος; from ἡδὺς *Sweet*, and from ὀσμὸς *Smell:* and this, ſaith[h] *Plinie*, is the reaſon why it is not rather called μινθή. Moreover, as he alſo affirmeth, the ſmell of it ſtirreth up the minde, and muſt therefore be good for ſtudents; good alſo againſt the biting of Scorpions. *Mint.* h *Lib.* 19. *cap.* 8. & *lib.* 20. *cap.* 14. *Good for ſtudents.*

But let the good huſwife never uſe to rub her milk-bowls with *Mints:* For *Mints* put into milk will not ſuffer the milk to curd, although the runnet or running (as they call it) be put unto it. This herb is hot and dry in the third degree; and, as *Schola Salerni* witneſſeth, is good againſt worms. *A note for good huſwives.* *Good to kill worms.*

The

The worms that gnaw the wombe and never ſtint,
Are killed, purg'd, and driv'n away by Mint.

Muſtard.

Muſtard, or *Senvie*, called in Greek by ſome νάπυ, by others σίνηπι, and in Latine *Sinapi* or *Sinapium*, is hot and dry in the fourth degree, and is marvellous good againſt a voice that's hoarſe: wherefore if any be given to muſick, and would fain have a cleare voice to ſing, let him make muſtard ſeeds into powder, and work the ſame with hony into little balls, of the which let him ſwallow one or two down every morning faſting, and in ſhort time his voice will be cleare.

To make one ſing cleare.

Moreover, *Muſtard* hath another good propertie, which muſt not be forgotten; and this it is,

i Sr. John Haringtons tranſ. of *Schola Salerni.*

How a woman may ſave her credit.

[i] *She that hath hap a husband bad to bury,*
And is therefore in heart not ſad, but merry,
Yet if in ſhew good manners ſhe would keep,
Onyons and Muſtard-ſeed will make her weep.

Peniryall.

Peniryall, or *Pudding-graſſe*, in Greek γλήχων, and in Latine *Pulegium*, or *Pulegium regale* (for difference between it and wilde *Thyme*, which ſome call *Pulegium montanum*) is an herb hot and dry in the third degree, and good for ſuch as are daily moved to ſleep: For let them but take the freſh *Peniryall* and hold it in their mouth, under their tongue; and by often applying the freſh herb, they ſhall drive away the deſire of ſleep.

Good againſt drowſineſſe.

Moreover, according to *Schola Salerni*,

Good againſt choler and the gout.

Let them that unto choler much incline,
Drink Peniryall ſteeped in their wine:
And ſome affirm that they have found by triall,
That Gouts great pain is eas'd by Peniryall.

Brionie.

Brionie, or the *White vine*, as it is commonly called, is of two kindes: the one white, the other black; beſides the wilde one, which is *Brionia ſylveſtris*. This plant is called in Greek ἄμπελος λευκή, in Latine *Vitis alba*: but according to *Plinie*, it is *Brionia*, or *Madon*.

White

White *Brionie* is in all parts hot and drie, exceeding the third degree.

It ſcoureth the skin, taketh away wrinkles, freckles, ſunne-burning, black marks, ſpots, and ſcarres of the face, if the juice be tempered with the meal of vetches, or tares, or of fenugreek: or boiled in oyl till it be conſumed, it taketh away black and blew ſpots which come of ſtripes.

Good againſt ſcarres, ſpots, freckles, &c.

And, as *Galen* affirmeth, it is a plant profitable for tanners, to thicken their leather hides with. *Ger. ex Galen.*

An herb for tanners.

Madwort.

Madwort, or *Moon-wort*, in Greek ἄλυσσον, in Latine *Alyſſum*, or *Lunaria*, is an herb of a temperature meanly drie, and very like to *Horehound*, but rougher and more full of prickles about the flowers; the colour of which flowers are tending to blew: the leaves are ſmall and faſhioned ſomething like an heart, with a crooked line along the ſame, divers tufts depending on a long tail, on both ſides: ſomewhat long, flat, and divided on the one ſide by crooked ſlittings, which ſeem to be round holes; the entrie whereof is raiſed both on the one part, and on the other. The ſtalks thereof are made with hollow angles, garniſhed with groſſe branches: and the grain in the cod, is made like a creſcent with two horns; from whence it is called *Moon-wort*, or *Lunaria*. Thus I finde it deſcribed: and note alſo that the root is ſlender, and about ſome foure fingers long.

I meet ſometimes with many ſtrange reports concerning this herb: and who more highly eſteem it then the Alchymiſts? becauſe it ſeemeth to be a thing very proper to them, and peculiar for their uſe in making of ſilver. The Italians call it, *Unſhoe-the-horſe*; becauſe, if they tread upon it, they loſe their ſhoes, and are freed from their locks and fetters.

This is an herb of a ſtrange propertie. For it is an herb that unſhoeth horſes, and the like.

Oh Moon-wort tell us where thou hid'ſt the ſmith,
Hammer and pincers thou unſhoo'ſt them with.

Du Bart.

Alas! what lock or iron engine is't
That can thy ſubtil ſecret ſtrength reſiſt,
Sith the beſt Farrier cannot ſet a ſhoe
So ſure, but thou with ſpeed canſt it undo?

Theſe ſecrets are ſtrange, and ſomewhat are they ſtrengthened by that which *Plinie* writeth of the wood-pecker, who, by the means of a certain herb, draweth the wedges out of the holes in trees, which ſhepherds have driven in: yea nails, or any other ſuch like wedges, are fetched out by the vertue of this herb. Thus *Plinie* relateth, and he alledgeth one *Trebias* for his witneſſe. See *Plin. lib.* 10. *cap.* 18.

Mr *Gerard* ſaith that it is ſowen now and then in gardens, eſpecially for the rareneſſe of it; but the ſeed (ſaith he) is brought over either from Spain or Italie. But why may it not grow in other places? I remember what a friend of mine, of good credit, once told me, that his grandfather had a cloſe, wherein it was a common thing to finde their horſes unfettered in the morning, although they were faſt ſhackled over night: he named alſo the place; but I have now forgotten it. Here do I ſuppoſe might grow ſome of this herb, if there be any ſuch to work theſe feats.

Good againſt the biting of a mad dog.

But to omit theſe ſtrange narrations, let me acquaint you with that excellent propertie which *Galen* mentioneth; namely, that if it be given to ſuch as are enraged by the biting of a mad dog, it doth perfectly cure them. *Ger. Herb. pag.* 380. It is therefore alſo called *Madwort.*

Parſley.

Parſley is an herb hot and drie; hot in the ſecond degree, and drie almoſt in the third. There be many kindes of *Parſley*; and every one of them, according to the Greek, are called σέλινον; and in Latine, *Apium, Petrapium*, and the like. But know that there is *Apium hortenſe, garden Parſley*; and *Apium paluſtre, water Parſley* (which is *Smallage*) and *Apium montanum, mountain*

Parſley

Parſley; and *Petrapium*, or *Petroſelinum Macedonicum*, which we in *England* call *ſtone Parſley*. Moreover, ſome ſay that *Aliſanders* are called the *great Parſley*: and again, there is *Apium ſylveſtre, wilde Parſley*.

Elianus reporteth, in the 13 book of his variable hiſtorie, that when the Harts ſtand in need of a remedie againſt any dangerous diſeaſe, they then uſe to eat wilde *Parſley*. How ſick Harts cure themſelves.

There be generally two ſorts of *Thyme*; the *wilde* and the *garden Thyme*: and both are hot and drie in the third degree. *Thyme.*

The wilde is called in Greek ἕρπυλλος, in Latine *Serpillum, à ſerpendo*, from creeping: for ſo it grows, and creeps upon the ground from place to place.

The garden *Thyme* is called *Thymum durius*, and in Greek θύμος, which is a generall name for all kinde of *Thyme*.

Bees are greatly delighted with this herb: and for ſuch as are ſubject to the falling ſickneſſe, let them uſe to ſmell unto it. Alſo, it being made into powder, is good for ſuch as be fearfull, melancholy, and troubled in minde, if it be taken in Mead, or a honied vineger which is called *Oximel*. *Ger.* Good againſt the falling ſickneſſe, and troubled mindes.

Arſmart, or *water Pepper*, groweth almoſt in every wateriſh plaſh, or neare unto the brims of rivers, ditches, and running brooks. In Greek it is ὑδροπέπερι, in Latine *Hydropiper*, or *Piper aquaticum*. It is hot and drie of temper. *Water Pepper.*

The leaves of this herb rubbed upon a tired jades back, and a good handfull or two laid under the ſaddle, doth wonderfully refreſh the wearied horſe, and cauſeth him to travell much the better: and note that this is to be done as ſoon as he beginneth to tire. An herb which will help the tiring of a jade.

Peionie, in Greek παιονία, in Latine *Pæonia*, and *Dulciſida*, is an herb meanly hot and drie. *Peionie.*

A medicine for the Mare, melancholy dreams, falling ſickneſſe, &c.

The black grains or ſeeds of the male *Peionie* bruiſed, and given to drink in mead or wine, help melancholy dreams, cure the diſeaſe called *Ephialtes*, or *Night mare.* A ſyrupe made of the flowers doth greatly help the falling ſickneſſe. And, as *Galen* hath found by ſure and evident experience, (ſaith Mr *Gerard*) the freſh root tied about the necks of children, doth the like cure: but unto thoſe that are grown, the ſaid root muſt be adminiſtred in ſome ſyrupe or decoction, and taken inwardly, or elſe it helpeth not.

Spear-wort.

Spear-wort or *Bane-wort*, is an herb which if it be taken inwardly, is deadly. It groweth by ditches and rivers ſides, and wateriſh places.

An herb which beggars uſe to bliſter their arms and legs withall.

Cunning beggars do uſe to ſtamp the leaves of this herb and lay them to their legs and arms, which cauſe ſuch filthie ulcers as we daily ſee among ſuch wicked vagabonds (for they will raiſe blains and bliſters) and by this practiſe they hope to move the people to the more pitie. But let not the abuſe extirpate the right uſe: for the learned affirm that it prevaileth much towards the drawing of a plague-ſore from the heart and inward parts. In Greek it is called πλατύφυλλος, and in Latine *Ranunculus longifolius*. Moreover, it hath alſo the name of *Bane-wort*, becauſe when ſheep feed on it, they have their livers enflamed, their guts and entrails fretted and bliſtered by it. It is hot and drie in the fourth degree.

Sulphur-wort.

Sulphur-wort or *Hogs fennell*, in Greek is πευκέδανος, in Latine *Peucedanus*, or *Feniculum porcinum*. It is hot in the ſecond, and drie in the beginning of the third degree; and is uſed with good ſucceſſe againſt the ruptures and burſtnings of young children; being very good to be applied to their navels, if they ſtart out over much.

Good for young children.

Feverfew.

Feverfew, called in Greek παρθένιον, or elſe ἀμάρακος, and in Latine *Parthenium*, is hot in the third degree, and drie in the ſecond.

This

This herb dried and made into powder, is good againſt a ſwimming and turning in the head, if ſome two drammes of it be taken with hony or ſweet wine. Good againſt a *Vertigo.*

Alſo it is good for ſuch as be melancholie,ſad,penſive, and not deſiring to ſpeak. Good to drive away ſadneſſe.

Mouſeare, or *Piloſella*, is hot and dry. The decoction or the juice of this herb is of ſuch excellencie, that if ſteel-edged tools glowing hot be often cooled therein, it maketh them ſo hard that they will cut ſtone or iron, be it never ſo hard, without turning the edge or waxing dull. *Mouſeare.* Good to harden edge-tools.

Celandine, or *Swallow-wort*, in Greek is χελιδόνιον, in Latine *Chelidonium*. This herb is hot and dry in the third degree. Some ſay that it was thus named becauſe (as [k] *Plinie* writeth) it ſpringeth at the coming of the ſwallows,and withereth at their departure:which,I ſuppoſe, is falſe, ſeeing it may be found all the yeare. That therefore which he writeth in his 8 book, the 27 chapter, did rather occaſion the name: For (ſaith he) the ſwallows have demonſtrated unto us, that *Celandine* is good for the ſight, becauſe when the eyes of their young ones be out,they cure them again with this herb. Whereupon one writes out of *Schola Salerni*, thus, *Celandine.* [k] *Lib.* 25. *cap.* 8.

An herb there is takes of the Swallows name,
And by the Swallows gets no little fame;
For Plinie writes (though ſome thereof make doubt)
It helps young Swallows eyes when they are out.

Alſo, the root being chewed is reported to be good for the tooth-ach. Good for the tooth-ach.

Angelica is hot and dry in the third degree. It is an enemie to poyſons,and cureth peſtilent diſeaſes,if it be uſed in time: yea the very root chewed in the mouth is good againſt infection. *Angelica.*

Contagious aire, ingendring peſtilence,
Infects not thoſe who in their mouthes have tane
Angelica, that happie counter-bane. Du Bart.

Dragon.
Ill for women with childe.

Dragon is an herb much like to *Angelica* in operation, if the diſtilled water be drunk: onely obſerve that the ſmell of *Dragon* flowers are hurtfull to women newly conceived with childe. *Ger.*

Sowbread.

Sowbread, or *Swines-bread*, is an herb hot and drie in the third degree. In Greek it is κυκλάμινος, and in Latine *Tuber terræ.*

A dangerous herb for women with childe.

This herb is alſo dangerous for women with childe either to touch, take, come neare, or ſtride over it: For, without controverſie (as Mr *Gerard* affirmeth) it maketh them be delivered before their times. He therefore, having it growing in his garden, uſed to ſet ſticks or barres, that ſuch a danger might be ſhunned. And this effect he attributeth to the extraordinarie naturall attractive vertue in it. *Dioſcorides* and *Matthiolus* do not deny the ſaid marvellous operation: and *Du Bartas* remembers it thus,

If over it a childe-great woman ſtride,
Inſtant abortion often doth betide.

Lavender.

Lavender (as is ſuppoſed) is but the female plant of that which we call *Spike*: and being ſweet in ſmell, it is uſed in baths and waters to waſh the hands: in which regard it is called *Lavender* or *Lavander*, from the Latine word *Lavo, to waſh.*

Leeks.

Leek is hot and dry: the Greeks call it πράσον, the Latines *Porrum*; according to which name, *Nero* the Emperour was called. For, becauſe he took great pleaſure in this root, he was named in ſcorn, and called *Porrophagus.*

The diſcommoditie of Leeks.

Leeks are not good for hot and cholerick bodies; becauſe if they be eaten often, they ingender naughtie bloud, hurt the head, dull the ſight, and make one to be troubled and affrighted with terrible dreams.

Onions.
Good againſt barrenneſſe and bleeding.

The like may be ſaid of *Onions*. And yet (according to ſome) the water of the diſtilled roots, being done in

June,

June, and drunk often by women that are barren, helpeth them: As alſo the ſame water helpeth the bleeding at the noſe, if fine cotten be dipped in it, and put up into the noſtrils.

And of *Onions* it is likewiſe written, that if they be bruiſed, and mixed with ſalt and hony, they will then deſtroy warts, and make them fall off by the very roots. Good againſt warts.

Alſo there is another propertie in *Onions*, which (when I had little elſe to do) I obſerved in this following Epigram,

He that a bad wife follows to the grave,
And knows not how, for joy, a teare to crave,
May Onions uſe to make him weep in ſhew;
For who can weep indeed to loſe a ſhrew?

A medicine to be uſed at the death of a ſhrew.

Garlick, called in Greek σκόροδον, and in Latine *Allium*, is hot and dry (as *Galen* writeth) even unto the fourth degree. It is called the countrey mans Triacle, and hath many good properties: And amongſt other things, one thing very ſtrange I finde recorded of it; viz. that though the often eating of it do harm the whole and perfect ſight, yet the moiſture or juice infuſed into the eyes, doth comfort a dull ſight. It is ſaid that the ſtrong ſmell of *Garlick* is put away by chewing of *Cummin*-ſeed, or by eating a green bean or two after it.

Garlick.

Good for the eyes.

Alſo I finde that if a woman doubt of her being with childe, let there be ſet all night by her bed ſide ſome *Garlick*, and if ſhe ſmell it not, then ſhe may conclude that ſhe hath conceived, or is with childe.

How, when a woman doubteth, ſhe may know whether ſhe be with childe.

Sleep not preſently after the eating of *Radiſh*, for that will cauſe a ſtinking breath.

And withall let this be noted, that the *Parſnep* and *Carret* are hot and dry about the third degree. The *Turnep* is hot and moiſt: This is a root which is eaten of

Parſnep. *Carret.* *Turnep.*

Swine eat no Turneps.

Skirret. *Artichoke.* *Elecampane.*

of men, but loathed of ſwine. The *Skirret* is moderately hot and moiſt. The *Artichoke* is hot and dry unto the ſecond degree. The *Elecampane* is hot in the third, but dry in the ſecond degree: and the chief vertues of it are to open the breaſt, or to help ſhortneſſe of winde cauſed by tough flegme, which ſtoppeth the lungs. Alſo it openeth oppilations of the liver and ſplene, and comforteth the ſtomack, as ſaith *Schola Salerni*,

The vertues of Elecampane.

Enula campana, hæc reddit præcordia ſana, &c.
Elecampane ſtrengthens each inward part,
Aſſwageth grief of minde, and cheers the heart.
A little looſeneſſe is thereby provoken;
It quelleth wrath, and makes a man fair-ſpoken.

Rape. *Tarragon.* *Red Darnell.*

The *Rape* is alſo of an hot temper. And *Tarragon* is hot and dry to the third degree. The *Red Darnell* is hot alſo, and good to be drunk for piſſing the bed.

Tobacco. The kindes of Tobacco, and where it was firſt found.

Of *Tabaco*, or (as it is commonly called) *Tobacco*, there be principally two kindes, ſaith Mr *Gerard*: one greater, the other leſſe. The greater was firſt found in thoſe provinces of *America* which we call the Weſt *Indies*. The leſſer comes from *Trinidada*, an iſland neare unto the continent of the ſaid *Indies*. To which ſome have added a third ſort. And ſince the firſt diſcovery, there have been plantations made in other places.

The names of Tobacco.

The people of *America* call it *Petum:* Others, *Sacra herba*, *Sancta herba*, and *Sana ſancta Indorum*. The reaſon being (as I take it) becauſe when the *Moores* and *Indians* have fainted, either for want of food or reſt, this hath been a preſent remedie unto them to ſupply the one, and help them to the other. And ſome have called it *Hyoſcyamus Peruvianus*, or *Henbane* of *Peru*; which alſo Mr *Gerard* aſſenteth unto, verily thinking that it is a *Species Hyoſcyami*, (for there be more kindes of *Henbane* then one) chiefly in regard of the qualitie; becauſe it bringeth drowſineſſe, troubleth the ſenſes, and maketh a man, as

it

it were, drunk, by taking of the fume onely. Of ſome it is named *Nicotiana exotica:* and by *Nicholas Monardis* it is named *Tabaco.* Which ſaid *Monardis* witneſſeth that it is hot and drie in the ſecond degree.

The qualitie of *Tobacco.*

The Phyſicall & chirurgicall uſes of it, are not a few; and being taken in a pipe it helpeth aches in any part of the bodie; being good alſo for the kidneys by expelling winde. But beware of cold after it; neither take it wantonly, nor immoderately. And know that ſome commend the ſyrupe before the ſmoke: yet the ſmoke (ſay they) phyſically taken is to be tolerated, and may do ſome good for rheums, and the forenamed maladies: which, whileſt ſome might cure, they make them worſe. For we ſee that the uſe is too frequently turned into an abuſe, and the remedie is proved a diſeaſe; and all through a wanton and immoderate uſe. For *Omne nimium vertitur in vitium.*

The vertues of *Tobacco.*

The uſe of things is many times turned into an abuſe.

To quaffe, roar, ſwear, and drink Tobacco well,
Is fit for ſuch as pledge ſick healths in hell:
Where wanting wine, and ale, and beer to drink,
Their cups are fill'd with ſmoke, fire, fume, and ſtink.

A leſſon for ſwearing ſwilling ſwaggerers.

I remember an excellent ſalve which I am taught to make of green *Tobacco:* the receipt whereof is thus. Take the leaves of *Tobacco* two pounds, hogges greaſe one pound: ſtamp the herb ſmall in a ſtone mortar, putting thereto a ſmall cup full of red or claret wine: ſtirre them well together, cover the mortar from filth, and ſo let it reſt untill the morning: then put it to the fire and let it boil gently, continually ſtirring it untill the wine be conſumed; then ſtrain it and ſet it to the fire again, putting thereto one pound of the juice of the herb, & of Venice turpentine 4 ounces; boil them all together to the conſumption of the juice: then adde thereto two ounces of round *Ariſtochia,* or *Birthwort,* in

An excellent ſalve to be made with the green leaves of *Tobacco.*

moſt fine powder, with wax ſufficient to give it a bodie: and ſo thou haſt made an accurate ſalve for wounds, or for old filthie ulcers of the legs, &c.

The Indian women take no *Tobacco*.

The women of America (as *Gerard* mentions in his Herball) do not uſe to take *Tobacco*, becauſe they perſwade themſelves it is too ſtrong for the conſtitution of their bodies: and yet ſome women of England uſe it often, as well as men. And, queſtionleſſe, thoſe natives amongſt whom it groweth, may take more at once then any one of us. It is ſaid that Sir *Francis Drakes* mariners brought the firſt of this herb into England in the yeare 1585, which was in the 28 yeare of Q. Elizabeth, and 3 yeares before Tilburie camp.

When *Tobacco* came firſt into England.

Betonie.

Betonie, in Greek κέστρον, in Latine *Betonica* and *Vetonica*, is hot and drie in the ſecond degree.

This herb hath an infinite number of ſoveraigne vertues, being very good for the head; taken by ſome in a pipe, as *Tobacco*, and not ſeldome mixed with *Tobacco*: it helpeth alſo the bitings of mad dogs by drinking the juice or powder of it, and by binding the green leaves to the bitten place.

Plinie relateth a ſtrange propertie pertinent to this herb: for, [1] ſaith he, if fell ſerpents be encloſed round about with it, they fall at ſuch oddes that they kill each other preſently. This herb is alſo good to help women in their travail.

1 *Lib.* 25: *cap.* 8.

And thus hitherto I have ſpoken of ſuch parcels of dame *Tellus* ſtore, as are onely hot of temper: unto which I might adde yet thouſands more; whether they be ſuch as are pleaſant in ſhew, ſweet in ſmell, delicate in taſte, wholeſome in operation, and the like: but the earth you know is large: and becauſe I am to ſee ſomething every where, I cannot ſtay long any where; leſt the fourth day dawn, before the third be finiſhed.

Theſe herbs following are cold and moiſt.

IN the next place therefore I muſt bring to your admirations ſome other parcels of another temper, wherein you may likewiſe ſee Gods wiſdome flouriſhing: for at which ſoever we look, there is a ſecret vertue that he hath infuſed into every one. In which regard, divine *Du Bartas* thus,

Good Lord! how many gaſping ſouls have ſcap't
By th' aid of herbs, for whom the grave hath gap't;
Who even about to touch the Stygian ſtrand,
Have yet beguil'd grim Pluto's greedie hand!
Oh ſacred ſimples that our life ſuſtain,
And when it flies can call it back again!
'Tis not alone your liquour, inly tane,
That oft defends us from ſo many a bane;
But even your ſavour, yea, your neighbourhood
For ſome diſeaſes is exceeding good.

As for example, *Yarrow* (as moſt men ſay) when the leaves are green and chewed, doth help the tooth-ach. Alſo the leaves being put into the noſe, do make it bleed, and is a remedie for the megrim, a pain in the head. It is an herb meanly cold in temper, and called in Greek ἀχίλλειος, in Latine *Achillea*, becauſe it was firſt found out by *Achilles* the diſciple of *Chiron*, and with it he cured his wounds. *Vide Plin. lib.* 25. *cap.* 5.

Yarrow. For the tooth-ach, head-ach, &c.

Sowthiſtle is cold: the Greeks call it σόγχοι; the Latines, *Sonchi*. If it be given in broth, it increaſeth milk in nurſes breaſts, cauſing the children nurſed by them, to have a good colour and cleare complexion.

Sowthiſtle. An herb for nurſes.

Groundſell is ſaid to have mixt faculties: for it cooleth, and withall digeſteth. The Latines call it *Senecio*, becauſe it quickly waxeth old: ſome alſo call it *Herbutum*.

Groundſell.

The leaves of this herb ſtamped and ſtrained into milk, and drunk, are good againſt the Red-gum and frets in children.

Good againſt the fret, &c.

Comfrey.

Comfrey is ſomewhat cold of qualitie, and of a clammie and gluing moiſture. It is highly commended of the learned for curing of wounds, eſpecially of the intrals and inward parts, and for burſtings and ruptures; inſomuch that they affirm the ſlimie ſubſtance of the root made in a poſſet of ale, and given to be drunk, cureth the pain in the back gotten by any violent motion, as wraſtling, and the like; to which ſome adde the overmuch uſe of Venus: for in foure or five dayes they are perfectly healed, although there be an involuntarie *fluxus ſeminis* gotten thereby. In Greek it is called σύμφυτον, in Latine *Symphytum*, and *Solidago*, or *Conſolida major.*

Good for to cure any wrinch in the back, and the like grief.

Lilies.

Good againſt the ſame infirmities.

The *Water-lilies* are alſo highly eſteemed for their vertues in curing ſome of the like infirmities: for thoſe which are skilfull do affirm that a decoction of the white or yellow *Water-lilie* made of the ſeeds, roots, or leaves, is ſingular good againſt nocturnall pollutions, cauſed by dreams, or otherwiſe. The ſame cure is alſo wrought by the green leaves laid upon the region of the back in the ſmall, and two or three times a day removed, and freſh applied. *Ger.*

The Greeks call this *Water-lilie* νυμφαία; the Latines *Nymphæa*: becauſe it takes ſuch delight to grow in the water.

Lettice.

Lactuca, in Greek θρίδαξ, and in Engliſh *Lettice*, is temperately hot and moiſt in the ſecond degree.

It cooleth a hot ſtomack called heart-burning: and, in nurſes that are hot and drie, it procureth milk; otherwiſe not. But it muſt never be eaten immoderately: for ancient authours affirm, that generally it hindereth conception by waſting of ſperm; and if it be not eſchewed of women with childe, it is a great means to make them bring forth children either raging in minde, or fooliſh in wit.

Harm in too much *Lettice.*

Alſo, the uſe of *Lettice* is to be avoided of all that be

Another hurt in *Lettice.*

ſhort-

ſhort-winded, and ſpit bloud, or be flegmatick; they may not eat it often. Yet he that would live honeſtly unmarried, let him not refuſe this medicine ſet forth by *Dioſcorides* and *Galen* (as the authour of the haven of health affirmeth) viz. let him bruiſe *Lettice* ſeeds, and often put them in his drink, &c. Good to procure chaſtitie.

Purſlain is cold in the third degree, and moiſt in the ſecond. The Greeks call it ἀνδράχνη, the Latines *Portulaca*. *Purſlain.*

The juice of this herb is good againſt fluxes; for it greatly ſtoppeth them. And note that the very herb holden under the tongue, putteth away thirſt and drineſſe. Good againſt fluxes and thirſt.

Violet, in Greek ἴον, in Latine *Viola*, is cold and moiſt; being cold in the firſt degree, and moiſt in the ſecond. The leaves inwardly taken do greatly cool, moiſten, and make the body looſe or ſoluble: or outwardly applied, do mitigate all kinde of hot inflammations. *Violets.* Good for coſtive bodies.

Theſe herbs following are cold and dry.

MAdder is called in Greek ἐρυθρόδανον, in Latine *Rubia*; and of its temperature the learned are not fully agreed: yet Mr *Gerard* ſaith it is cold and dry. It is good to give the decoction of the roots to burſten and bruiſed folks; which roots do alſo plentifully provoke urine: and (as ſome affirm) the very holding of the root or handling of it, dieth the handlers urine into a perfect red colour, appearing as if he piſſed bloud. Whereupon ſaith *Du Bartas*, *Madder.* Good againſt bruiſes. A ſtrange propertie in Madder.

O wondrous Woad, which touching but the skinne,
Imparts his colour to the parts within!

But note that this muſt be underſtood of the root held long in the hand, and freſhly gathered: for being kept and tranſported, it hath not this vertue. *Plinie* attributeth more unto it: for, ſaith he, the onely ſight of this herb

herb healeth the Jaundiſe. But in this laſt propertie, let the reader uſe his libertie.

Willow-wort.

Willow-wort, or *Looſe-ſtrife*, is an herb cold and dry, whoſe firſt vertues were found out by *Lyſimachus* the ſonne of *Agathocles*, and one of *Alexanders* captains, from whom it is called *Lyſimachium*, or *Lyſimachia*. *Plinie* writeth of this herb that it is of ſuch ſtrange vertue, that when [m] Oxen at the plough are ſtriving and unrulie, let it be put into their yokes, and preſently they are appeaſed and quieted. This herb is contrary to *Betonie*; which, in theſe two verſes, you may remember,

m *Plin. lib.* 25. *cap.* 7.

Du Bart.

As Betonie breaks friendſhips ancient bands,
So Willow-wort makes wonted hate ſhake hands.

Shepherds purſe.
Good againſt green wounds, fluxes of bloud, &c.

Shepherds purſe, or *Burſa paſtoris*, is cold and dry: the leaves bruiſed are good to heal green bleeding wounds: And alſo the decoction of it doth ſtop the lask, the ſpitting and piſſing of bloud, and all other bloudie fluxes.

Houſleek.

Good againſt corns.

Sen-green or *Houſleek*, is alwayes green, both in ſummer and winter: Whereupon it is called in Greek ἀειζώον, which is as much as *Semper vivens*, or *alwayes living*. It is cold in the third degree, and ſomewhat drying. The juice hereof taketh away corns from the toes and feet, better then any thing that you can eaſily get: Let them be waſhed and bathed therewith, and as it were day and night emplaſtred with the skin of the ſaid *Houſleek*, and you ſhall finde remedie.

Sorrell.

Sorrell or *ſoure-Dock*, in Latine *Acida*, in Greek Ὀξύμος, is cold and dry; being cold in the third degree, and dry in the ſecond.

Good againſt the lask, and infection.

The ſeeds of *Sorrell* drunk in groſſe red wine, ſtop the lask and bloudie flux. Alſo if one faſting do chew ſome of the leaves, and ſuck down the juice, it marvelouſly preſerveth from infections. *Eliots* caſtle of Health.

Plantain,

Plantain, called in Greek ἀρνόγλωσσον, which is *Lambes-tongue*, and in Latine *Plantago*, is cold and dry in the third degree. *Plantain.*

The juice of *Plantain* drunk (like unto *Houſleek*) ſtoppeth the bloudie flux, or ſpitting or piſſing of bloud. And the leaves ſtamped and made into a Tanſie, with the yelks of eggs, ſtay the inordinate flux of terms, although it hath continued many yeares. *Ger.pag.* 341. But on the contrary, the decoction of *Cammomill* or *Germander*, made in wine, and drunk, voideth winde, and procureth them to flow.

To ſtay fluxes.

To provoke fluxes.

And thus alſo I have given you a taſte of ſome cool as well as hot herbs. And in moſt of theſe, as in ſuch other things of the ſame nature, I muſt confeſſe, that as I have ſeen a deſcription of the world ſet forth by ſuch whoſe reading was their furtheſt travell; ſo, out of good Authours, and skilfull Herbaliſts, I have both learned and taught theſe ſecrets. Unto which I have yet a few more that I intend to adde; and becauſe theſe are the moſt ſtrange, I have reſerved them unto the laſt place.

Theſe herbs which follow, are herbs of more then ordinarie properties.

As firſt the noble [n] *Nepenthe*, an herb which being ſteeped and drunk in wine, expelleth ſadneſſe.

n *Plin. lib.* 25. *cap.* 2.

2. Then is there the herb *Hippurin*, or *Hippice*; of which *Plinie* [o] writeth that it is admirable in ſtenching bloud, inſomuch that the cure is performed by the very touch of it; being alſo very good to keep one from hunger and thirſt, while it is kept in the mouth.

o *Lib.*26. *cap.* 13.

3. Alſo, there is *Nyctilops* or *Nyctegretum*, an herb which in the night [p] ſhineth a farre off: and, above all other creatures, at the firſt ſight it ſcareth Geeſe.

p *Idem lib.* 21. *cap.* 11.

4. *Pythagoras*

4. *Pythagoras* telleth of the herb [q] *Callicia*, which will turn water into ice.

q *Plin. lib.* 24. *cap.* 17.

5. *Ophiuſta* is an herb growing in *Ethiopia*: it is of a wanniſh colour, dangerous to be looked on: and being drunk, it doth ſo terrifie the minde with a ſight of angry and dreadfull ſerpents, that through the fear of them men have [r] ſometimes killed themſelves.

r *Idem ibid.*

6. *Hemlock* (as ſome relate out of *Galen*, in his book *De temperamentis*) is meat to ſtorks, and poyſon to men.

7. *Sardonia*, or *Crow-foot* (as ſome write out of *Solinus*) is an herb which moveth laughter.

A bleeding herb.

8. Upon a mountain of *Cypres* called *Arcadie*, is an herb or plant growing, which if a man cut, there iſſueth a liquour like warm bloud: if with this bloud, thus warm, one man ſhould touch another, he would love him affectionately whom he toucheth. Contrariwiſe, if the bloud be cold, the touch will ingender hatred. My authour calleth this plant, *Flabia*. See *Du Bart*. Summarie.

9. Moreover, in the ſame authour I finde (as he hath it from one *Rhamnuſius*, in his Navigations) that in the iſland called *Auſtralle*, there is an herb found, upon which whoſoever lieth down, he is firſt taken with an heavineſſe of the head, then with ſleeping, and conſequently with death.

10. Magicians make uſe of the herb *Anacrampſeros*, which (as I finde in [s] *Plinie*) by the very touch thereof cauſeth love to grow between man and man, aboliſhing all former hatred.

s *Lib.* 24. *cap.* 17.

11. The like is reported in a manner of the herb *Sowbread*, which being made into little flat cakes, and taken inwardly, is a good amorous medicine, and will make one in love. *Ger.*

12. Alſo they report, ſaith *Dioſcorides*, that the herb *Snap-dragon* or *Calves-ſnout* being hanged about one, preſerveth a man from being bewitched, & maketh him gracious

gracious in the ſight of the people. *Gerard. ex Dioſcor.*

13. Enchanters alſo make great brags of the herb *Ethiopis* (which, I think, ſome call by the name of *Moly*)

14. And of the herb *Achimedis:* the firſt whereof being caſt into rivers, will drie them up; or being applied to any thing lockt or ſhut, will preſently open it: the other being caſt into an armie in the time of battel, cauſeth the ſouldiers to be in fear, and runne away. Thus ſay ſome. Neither hath *Plinie* forgotten theſe two laſt herbs: but he mentions them with a kinde of deriſion, as in the 26 book and 4 chapter of his naturall hiſtorie is apparent; where he wondereth why enchanters would not make uſe of them in time of danger and extremitie. And for mine own part, this I cannot but ſay, that it is great pitie the ſecrets of nature ſhould be ſoiled by infamous magick, and by the ſuperſtitious ignorance of ſorcerers.

It is pitie that natures ſecrets ſhould be ſoiled by magick.

15. Unto theſe, *Apollodorus* hath added the herb *Æſchynomen*, which draweth in the leaves when the hand of any one approacheth to touch it.

16. Like unto which is the herb *Sentida*, growing in [t] *India:* for if any one come neare and touch it, or throw ſand, or any thing elſe upon it, preſently it becometh as if it were withered, and cloſeth up the leaves; ſo continuing as long as the man ſtandeth by: but ſo ſoon as he is gone, it openeth freſh and fair: and touching it again, it withereth as before.

t *Purchas Pilgrim. part.* 1. *lib.* 5. *cap.* 12.

Theſe, you ſee, are rarities: and being now ready to paſſe away from them, I ſhould come to ſpeak ſomething of grain; as *wheat, rie, barley, lintels, oats, peas, beans, rice*, with ſuch other like; and gladly would I do it, but that (me thinks) I am called another way: for lo I have diſcovered the tops of yonder trees; and one by one, I mean to view them.

Here the authour beginneth to ſpeak of trees.

Agnus caſtus.

a *Lib. 24. cap. 9*

Vitex, or the *chaſte tree* (which the Greeks call ἄγνος, and λύγος, becauſe, ſaith[a] *Plinie*, certain matrons among the Athenians, deſirous to live chaſte, did lay the leaves of it in their beds under them) is called in the Latine *Salix marina*, or *Salix amerina*, or *Piper agreſte*, or *Agnus caſtus*. And, as *Plinie* writeth, it is of two kindes; the greater, and the leſſer. The firſt groweth up much like a willow tree: but the other brancheth out and ſpreadeth more, having whiter and downier leaves then the former. Our[b] countreyman, and an excellent Herbaliſt, ſaith that it groweth up after the manner of a buſhie ſhrubbe or hedge tree, having many twiggie branches, very pliant and eaſie to be bent like unto the willow: the flowers are of a light blew colour, and very ſweet in ſmell; the leaves long and narrow; and the fruit ſmall and round like unto the grains of pepper. And note that the flowers grow at the uppermoſt end of the branches, cluſtering cloſe together.

Ibid.

b Mr *Gerard.*

Some ſay that it is a plant hot and drie in the ſecond degree; others name the third.

It is a ſingular medicine for ſuch as would live chaſte, in what ſort ſoever it be taken, whether in powder, or decoction, or the leaves worn about the bodie.

Alſo it driveth away windineſſe of the ſtomack, openeth and cureth the ſtoppings of the liver and ſplene, with ſundry ſuch other needfull cures.

Willow.

From whence came the firſt uſe of willow garlands.

Willow is of a much like nature; and therefore it is yet a cuſtome, that he which is deprived of his love, muſt wear a willow garland. Alſo the green boughs with their leaves may well be brought into chambers, and ſet about the beds of thoſe who are ſick of agues: for they do mightily cool the heat of the aire; which thing cannot but be a wonderfull refreſhing to the ſick patient.

Tamariſk.

Good for the ſplene or milt.

Tamariſk is a little tree well known; the decoction of whoſe branches being drunk in wine, and a little vineger,

vineger, is of great vertue againſt the hardneſſe or ſtopping of the ſplene or milt: for this tree doth by nature ſo waſte the milt, that ſwine which have been daily fed out of a veſſel made thereof, have been found to have no milt at all.

Roſe. The temper and vertue of Roſes.

Roſe is cold in the firſt degree and drie in the ſecond, ſomewhat binding, eſpecially the white Roſe. The red is leſſe cold, more drie, &c. As for the damask and musk Roſe, it is hot, and moiſt withall. The damask water is ſweeteſt; but the red is wholeſomeſt. And of the red Roſe leaves a conſerve may be made, which is good, not onely to cool, but alſo to comfort the principall parts of the bodie, viz. the head, heart, ſtomack, liver, ſplene, and reins. Thus you may make it. Take the buds of red Roſes ſomewhat before they be ready to ſpread; cut the red part of the leaves from the white, ſhake out the yellow ſeeds: then take the red leaves and beat them very ſmall in a ſtone mortar with a peſtle of wood; and unto every ounce of Roſes put three ounces of ſugar, by little and little, in the time of the beating, and beat them all together untill they be perfectly incorporated: then put it in a glaſſe or gallipot; ſtop it cloſe, and ſet it in the ſunne for a ſeaſon, and it is made. And know that it will remain in full vertue for a yeare or two, but then it decayeth.

Conſerve of Roſes, what it is good for.

How to make the conſerve.

Myrtle. Good againſt fluxes.

Myrtle is a little low tree growing in ſome hot countreys, having ſmall dark leaves, bearing berries which are of a binding nature, and good to ſtop any iſſue of bloud. This is a tender plant, not able to endure any cold; and (as authours affirm) it was wont to be worn of the Romane captains garland-wiſe in triumph; namely then, when they had obtained any victorie without ſlaughter of men. Alſo in times paſt this tree was conſecrated to *Venus:* and thereupon I finde in *Plinie*, that amongſt the Romanes there was an altar belonging to *Venus*, which

Myrtle garlands.

they call by the name of *Murtia*. The ſaid authour alſo affirmeth, that before pepper was found out, the myrtle berries ſerved in ſtead thereof. See *Plin. lib.* 15. *cap.* 29.

Myrtle berries uſed for pepper.

Ebone.

A ſmoke good for the eyes.

Ebone is a tree growing in India and Ethiopia, in taſte being ſharp and biting. If it be burnt, it yeelds a ſweet ſmell, the ſmoke whereof is not offenſive, but good againſt many diſeaſes of the eyes: as alſo the green wood is ſo full of ſap, and withall ſo fattie, that it will flame like a candle. Some have ſaid that it bears neither fruit nor leaves; but this is a falſe opinion, as they have witneſſed who have ſeen the tree, and taken the true picture of it. The outward parts are white, but within it is black. That which groweth in India, is not in ſuch eſtimation as the Ethiopian *Ebone*; for it is ſpotted with white and yellow.

Sethim.

Sethim is a kinde of tree ſomething like a *White-thorn*; the timber whereof never rotteth. Of this tree, Noah, according to Gods command, made the ark; as we reade in Geneſis.

Palm.

Palm, or *Date* trees, are both one. This tree groweth plentifully in Egypt, and other parts of Africa; but thoſe which are in Paleſtine and Syria are the beſt: they grow likewiſe in moſt places of the Eaſt and Weſt Indies.

A token of victorie.

The branches of this tree were wont to be carried as a token of victorie, becauſe they are of this nature, viz. that they will ſhoot upward, though oppreſſed with never ſo great weight: neither do the leaves of it ever fall. *Elianus* remembreth another propertie; for (ſaith he) the report runneth thus, that in *Delus* the Olive tree and the Date tree flouriſh moſt fruitfully, which when *Latona* had touched, ſhe was ſuddenly diſburdened of childebirth, whereas before ſhe could not be delivered. *Elian. lib.* 5. Alſo they grow by couples, male and female: but the female is onely fruitfull.

Latona delivered by the *Date*.

Plane.

The *Plane* tree, called *Platanus*, is a ſpreading tree with

with broad leaves: in times paſt it was greatly eſteemed in Italie for the ſhadow thereof; inſomuch that (as *Plinie* reporteth) they often bedewed it with wine to make it grow. The old Romanes were wont to banquet much under theſe trees. And there is, ſaith *Plinie*, no greater commendation of this tree, then that it keepeth away the ſunne in ſummer, and entertaineth it in winter.

A banqueting tree.

We reade of *Xerxes* King of Perſia, that he was ſtrangely enamoured on this tree, having it in ſuch ſingular admiration that he became a ſervant to it. For in Lydia (as *Elianus* [c] writeth) when *Xerxes* happened to ſee a tall and loftie fair *Plane* tree, he made a whole dayes tarriance by it; and, no neceſſitie conſtraining him ſo to do, he pitched his pavilions and tents in the void and emptie places round about the ſame. He alſo hanged precious jewels of great value upon it, adorning and beautifying the boughs and branches with chains of gold, with bracelets and tablets, with ſpangles and ſuch like coſtly things, yeelding thereunto great worſhip and reverence; appointing alſo an overſeer to keep, preſerve, and defend the ſame from all caſualties. This was a ſtrange crotchet; and little or nothing the better was the poore tree for all this love and braverie.

c *Variab. hiſt. lib.* 2.

Pepper.

Pepper (whereof there are divers ſorts) groweth at the foot of other trees, climbing upon them like to ivie, and is in bunches like grapes.

Ginger.

Ginger groweth like young reeds, with a root like a lilie: it is plentifull in *Malabar*, or *Malavar*, a province in India *intra Gangem*.

Cinnamon.

Cinnamon is the inner bark of a tree as big as an olive; with leaves like bay leaves, and fruit like an olive: the drying of the bark maketh it roll together. Within three yeares the tree yeeldeth another bark, as before. They of *Ormuz* call it *Darchini*, that is, *wood of China*: and ſelling it at Alexandria, they call it *Cinnamomum*,

which is, *quaſi Amomum ex Sina delatum. Purch. ex Garcia ab horto.*

Nutmegge and *Mace.*

The *Nutmegge-tree* is like a peach or pear-tree, and groweth moſt in *Banda* an iſland in Aſia, and in *Java.* The fruit is like a peach, the inner part whereof is the *Nutmegge*, which is covered and interlaced with the *Mace.* For when the fruit is ripe, the firſt and outermoſt part openeth, as it is with our walnuts; then the *Mace* flouriſheth in a fair red colour, which in the ripening becometh yellow.

Cloves.

Cloves grow in the *Moluccos* on trees, like bay-trees, yeelding bloſſomes, firſt white, then green, afterwards red, then hard; and this hard thing is the *Clove.* When they be green they yeeld the pleaſanteſt ſmell in the world. And (as it is reported) being ripe they are of ſuch an extraordinary heat and drineſſe, that in two dayes they will ſuck out and drie up ſuch veſſels of water, as ſhall happen to ſtand in the ſame room where they are. Theſe ſpices and drugs, with many other, are the fruits of India.

Cypreſſe.

The *Cypreſſe* is a tree growing on drie mountains, and moſt commonly in hot countreys. It is very tall, and the timber thereof is yellowiſh and of a pleaſant ſmell, eſpecially being ſet neare to the fire; and of ſuch durable nature, that it doth neither rot nor wax old, nor yet cleaveth or chappeth it ſelf. See *Plin. lib.* 16. *cap.* 33, & 42.

Pine.

The *Pine* is a tree of the ſame nature, not ſubject to worms or rottenneſſe, and therefore much uſed, where it groweth, to make ſhips. The leaves are hard-pointed, ſharp and narrow, continuing green all the yeare; and the ſhadow thereof[d] will not ſuffer any plant to grow under it.

[d] Plin. lib. 17. cap. 12.

Cedar.

Cedar is a tall great tree which groweth in Africa, and Syria; many of them upon mount Libanus. They be

ſtraight and upright like the Firre-tree: their leaves are ſmall, thick, and of a ſweet ſmell. This tree hath fruit on it all times of the yeare, which fruit is like to that of the Firre & Pine-tree, but greater and harder: and at this day (as ſome affirm) there are found upon mount *Libanus*, *Cedars* planted by King Solomon: the truth of which I will not ſtand to juſtifie.

Terebinth.

Terebinth is a tree from whence Turpentine iſſueth.

Picea.

Picea is a tree that droppeth pitch; it groweth in Greece, Italy, France, Germanie, and all the cold regions even unto Ruſſia. It remaineth alwayes green like unto the *Pine*; and, by ſome, is ſuppoſed to be a wilde kinde of *Pine*: eſpecially ſeeing the *Pine* affordeth Roſin, Pitch and Tarre. Yet ſome attribute Pitch to the great *Cedar*, Roſin to the wilde *Pines* chiefly, and Tarre to the *Pine* called the *Torch-Pine*.

Cocus.

There is a tree in India, called the Indian *Coquo*, or *Cocus*, being the moſt ſtrange and profitable tree in the world; of which in the iſlands of *Maldiva* they make and furniſh whole ſhips: ſo that (ſave the men themſelves, [e] ſaith one) there is nothing of the ſhip or in the ſhip, neither tackling, merchandiſe, or ought elſe, but what this tree yeeldeth. It groweth high and ſlender, the wood is of a ſpungie ſubſtance, eaſie to be ſewed, when they make veſſels thereof, with cords made of *Cocus*. It hath a continuall ſucceſſion of fruits, and is never without ſome: they grow like a kinde of nut, which is of a very large ſize, having two ſorts of husks as our walnuts; the uppermoſt whereof is hairy like hemp, and of this they make cordage; and of the next they make drinking-cups. When the fruit within theſe ſhells is almoſt ripe, it is full of water, which, as it ripeneth, changeth into a white harder ſubſtance: at the firſt this liquour is ſweet, but with the ripening groweth ſowre. The tree affords a very medicinable juice; and, if it ſtand one houre

e Mr *Purchas* pilgrim. part 1. *lib.* 5. *cap.* 12.

houre in the ſunne, it is good vineger; but diſtilled, it may be uſed in ſtead of wine or *Aqua-vitæ*. There be wayes alſo to make ſugar of it, and of the meat in the nut dried they make oyl: Of the pith or heart of the tree they make paper:of the leaves they make coverings for their houſes, tents, mattes, and the like. Nay, their apparell, firing, and other neceſſary commodities, they gather from this tree. Thus ſome. Or, according to others, it is thus deſcribed. In the iſle of *Zebus* there is a fruit which they call *Cocos*, formed like a *Melon*, but more long then thick: It is incloſed with divers little skinnes, ſo ſtrong and good as thoſe that environ a Date ſtone. The iſlanders make thread of the skinnes, as ſtrong and good as that which is of hemp. The fruit hath a rinde like a drie Gourd, but farre more hard: which, being burned and beaten to powder, ſerveth for medicine. The inward nut is like unto butter; being both as white, and as ſoft, and beſides that, very ſavoury and cordiall. They make uſe of this fruit alſo in divers other things. For if they would have oyl, they turn and toſſe it up and down divers times: then they let it ſettle ſome few dayes, at which time the meat will be converted into a liquour like oyl, very ſweet and wholeſome, wherewith they oftentimes anoint themſelves. If they put it into water, the kernell is converted into ſugar; if they leave it in the ſunne, it is turned into vineger. Towards the bottome of the tree they uſe to make a hole and gather diligently into a great cane the liquour that diſtilleth, which amongſt them is of as much eſteem as the beſt wine in theſe parts: for it is a very pleaſant and wholeſome drink.

Arbore de rais.

There is alſo among the Indians a tree called *Arbore de rais*, or *the tree of roots*, called alſo the *Indian fig-tree*, and by ſome affirmed (with more confidence then reaſon, ſaith one) to be the tree of Adams tranſgreſſion. It

groweth

groweth out of the ground, as other trees, and yeeldeth many boughs, which yeeld certain threads of the colour of gold, which growing downwards to the earth do there take root again, making as it were new trees, or a wood of trees, covering ſometimes the beſt part of a mile.

There is alſo another tree which ſome call the *Indian mourner*, or *Arbore triſte*, the ſad and ſorrowfull tree. It hath this propertie, that in the day time and at ſunne-ſetting you ſhall not ſee a flower on it: but within half an houre after, it is full of flowers, which at the ſunne-riſing fall off, the leaves ſhutting themſelves from the ſunnes preſence, and the tree ſeeming as if it were dead. The Indians have a fable of one *Pariſatico*, who had a daughter, with whom the ſunne was in love; but lightly forſaking her, he grew amorous of another: whereupon this damoſel ſlew her ſelf, and of the aſhes of her burned carcaſe came this tree. A prettie fiction this: *Ovid* himſelf hath not a better. *Arbore triſte.*

In the iſland of *Hierro* (being one of the ſeven iſlands of the *Canaries*) is a tree which diſtilleth water inceſſantly from the leaves thereof, in ſo great abundance, that not onely it ſufficeth thoſe of the iſland (for there is no other water in the iſland) but alſo might furniſh the neceſſary uſes of a farre greater number of people. This ſtrange tree is alwayes covered with a little miſt, which vaniſheth by degrees, according as the ſunne ſheweth himſelf. *A weeping tree.*

When the Spaniards (ſaith my authour) took upon them to conquer this iſle, they found themſelves almoſt diſcomfited, becauſe they ſaw neither fountains, ſprings, nor rivers: and enquiring of the iſlanders where they had their water, they anſwered that they uſed none but rain-water, & in the mean time kept their trees covered, hoping by this ſubtiltie to drive the Spaniards out of the

iſle again. But it was not long before one of their women, entertained by a Spaniard, diſcovered the tree with the properties of it; which he at the firſt held for a fable, untill his own witneſſe ſaw it was true; whereupon he was almoſt raviſhed with the miracle: but the woman was put to death by the iſlanders, for her treacherie.

Barnacle tree.

In the north parts of Scotland and in the iſlands adjacent called *Orchades*, are certain trees found whereon there groweth a certain kinde of ſhell-fiſh, of a white colour, but ſomewhat tending to a ruſſet; wherein are contained little living creatures: For in time of maturitie the ſhells do open, and out of them by little and little grow thoſe living creatures; which falling into the water when they drop out of their ſhells, do become fowls, ſuch as we call *Barnacles* or *Brant Geeſe*: but the other that fall upon the land, periſh and come to nothing. Mr *Gerard* affirmeth that he hath ſeen as much in *Lancaſhire*, in a ſmall iſland which is called the *Pile of Foulders*: for there be certain boughs of old trees, and other ſuch like rubbiſh caſt up by the ſea, whereon hangeth a certain ſpume or froth, which in time breedeth unto a ſhell: out of which by degrees cometh forth a creature in ſhape like a bird; ſending out firſt a ſtring or lace, as it were, of ſilk finely woven, and of a whitiſh colour; then follow the legs, and afterwards more and more, till at the laſt it hangeth by the bill: ſoon after it cometh to maturitie and falleth into the ſea, where it gathereth feathers, and groweth to a fowl bigger then a mallard, and ſomething leſſe then a gooſe, being ſomewhat coloured like to our mag-pies. This Mr *Gerard* teſtifieth to be true upon his own knowledge; as in his Herball is apparant.

And thus (gentle reader) I would here end, not onely this Chapter and Section, but alſo the firſt part of my book,

book, were it not that I have a deſire to ſpeak a word or two of things growing under ground, and within the earth: which, as briefly as I can, ſhall be handled in the following Appendix.

An Appendix to the two former Sections; diſcourſing ſomewhat concerning Metalls, and ſuch like things as are under ground.

IN the ſecond dayes work I had occaſion to ſpeak of Fiery, Aierie, and Watery Meteors: all which by the Philoſophers are named bodies imperfectly mixt, being but a little durable. And now, being to ſpeak of things under ground, I am come to bodies more perfectly mixt, and of a longer continuance, becauſe they conſiſt of a more ſolid and conſtant concretion of Elements.

Their names in generall, are either *Mineralia*, Mineralls; *Foſſilia*; or *Metalla.*

They are *Mineralia*, becauſe they are generated in Mines; that is, in the veins, pores, and bowells of the earth.

They are *Foſſilia*, from *Fodio, to dig*, becauſe they are digged out of the earth.

And they are *Metalla, Metalls*, from the Greek word μεταλλᾶν, which is *to ſearch*, or *finde out*; becauſe, with much labour and coſt, they are ſought out of the veins and bowells of the earth.

That name which I inſiſt upon, is this laſt: And that the kindes of Metalls may the better be remembred, this ſhort table would be obſerved.

Metalls are either
- Principall: which are of themſelves; as Sulphur and Mercurie, being (as it were) the father and mother of all metalls.
- Leſſe principall
  - derived from the principall,
    - more pliable
      - pure
        - more
          - Gold.
          - Silver.
        - leſſe; having either more
          - Brimſtone, or
          - Quickſilver.
    - leſſe pliable
      - Hard ſtones
        - common
          - ſolid
            - ſhining.
            - not ſhining.
          - full of pores, as the Pumex and Tophus.
        - precious
          - more noble, ſhining more.
          - leſſe noble, ſhining leſſe.
      - Brittle, or of a friable nature; eaſie to be brought into crumbes: And theſe are all kindes of precious earths, and ſucks of the earth: as *Terra Lemnia, Samos*, *Bitumen, Sal*, &c.

Of theſe kindes I purpoſe to ſpeak a word or two, which ſhall be as it were to explain the table to ſuch as know it not.

The firſt, or principall metalls, are *Sulphur*, and *Mercurie*: Theſe are of themſelves, becauſe other metalls do not help to make them, but they help to make other metalls.

Brimſtone. *Sulphur* or *Brimſtone*, is ſaid by ſome to be the fat of the earth with fiery heat decocted unto his hardneſſe; which is the cauſe that it ſo ſpeedily is enflamed, and burneth even in water.

Or thus. *Sulphur* is a metallick ſubſtance or matter, conſiſting of a more ſubtill Exhalation, fat and unctuous, ſhut up within the veins of the earth. It will burn ſooner then the fat of beaſts: for although it be fatter then *Brimſtone*, yet it is farre colder.

Mercurie

Mercurie or *Quickſilver* is a ſlimie water, mixt with a pure white earth; which metall, for the matter whereof it doth conſiſt, is thin, cold and heavie. *Quickſilver.*

Or thus. *Quickſilver* is a metallick matter, conſiſting of a waterie vapour, more ſubtil then ordinary, which is mixed with earth to conglutinate or knit it together; and, by the heat of *Sulphur*, it is digeſted into what it is. It pierceth metalls, becauſe of the extream thinneſſe; which, together with the heat of it, makes it be in continuall motion: and the motion, by a Metaphor, cauſeth it to be called *Quickſilver*. Moreover, it is alſo called *Mercurie*, becauſe as Mercurie is joyned to all the Planets, ſo this to all metalls: or as Mercurie is moved many wayes, ſo this is apt for any motion.

The leſſe principall metals are derived from theſe firſt. I call them leſſe principall becauſe they are not of themſelves, but produced by the help of the other two. Metalls derived from the two firſt.

Theſe I divide into two ſorts; the pliable, and the leſſe pliable.

Pliable metals are pure: and that, either more or leſſe. The more pure, are *Gold* and *Silver*. Pliable metalls of the pureſt kinde.

Gold is the onely pureſt of all metals, and is compoſed of a moſt pure red *Sulphur*, and of the like *Quickſilver*: they are red, but not burning. This metall is onely perfect; all other be corruptible. It is perfect, becauſe it is concocted with ſufficient heat, and mixture of *Sulphur*: whereas all other metals, either are not ſo well concocted, or elſe they have not the due quantitie of brimſtone: and (as it is affirmed by the Alchymiſts) becauſe nature in all her works ſeeketh the beſt end, ſhe intendeth of all metals to make gold: but being hindred, either for want of good mixture, or good concoction, ſhe bringeth forth other metals; although not ſo precious, yet in their ſeverall uſes, every way as profitable, if not more: for it is ſcarce a queſtion[f] whether there be more uſe *Gold.*

Moores *Utopia.*

uſe to the neceſſitie of mans life, in Iron and Lead, then is in Gold and Silver. Gold never ruſteth, both becauſe of the pureneſſe of its parents, free from poiſonous infection; and alſo becauſe it is ſo ſolidly compoſed that no aire (which cauſeth all things to corrupt) can be received into it.

This perfection, together with the rareneſſe, and beautie of it, hath cauſed fond mortals to doat ſo much upon it as they do. Nay, will not one pound or ounce of this go further then ten, either ounces or pounds of honeſtie? The Poets ſaying agreeth to it,

Aurea nunc verè ſunt ſecula, plurimus auro
Venit honos.

This is the golden age, not that of old:
For now all honour's to be bought with gold.

And hereupon I think it is, that moſt men diſpraiſe this metall, and yet but few who would not have it.

Diverſas hominum videam cùm ſparſa per artes
Ingenia, eſt cunctis ars tamen una viris.
Omnibus idem animus gratos ſibi quærere nummos:
Omnis inexhauſtas undique poſcit opes.

When I behold the wits of men inclin'd
To divers arts, I all of them do finde
In this one art to meet; they ſhun no pain
Wiſh'd wealth to heap up, and augment their gain.

Nay, they are not common fetches and plots, but ſtrange and bloudie damned practiſes which are often uſed to get and obtain the riches of the world. Which *Ovid* could diſcern a long while ſince; and therefore he ſaith,

Metamorph. lib. 1. *Effodiuntur opes irritamenta malorum:*
Jámque nocens ferrum, ferróque nocentius aurum.

Riches (thoſe fond enticements unto ill)
Are digged up; and iron which doth kill.
But Gold it is which doth more harm to men
Then iron blades, though ſteel'd, though ſharp, though keen.

Or,

Or, as another ſaith,

Aurum, deſtructor vitæ, princépſque malorum,
O quàm difficiles nectis ubique dolos!
O utinam natum nunquam mortalibus eſſes,
Dulcia ſuppeditas quæ nocumenta viris!
Gold, lifes deſtroyer, and of miſchiefs chief,
Oh what ſtrait wiles doſt thou knit, paſt belief!
Would thou hadſt ne're been born to mortall wights,
Sith harm to men reſts in thy falſe delights!

Theſe are the complaints. But it is neither in Gold nor Iron or the like, that theſe evils reſt; the cauſes of ill ought rather to be imputed to the devil and wicked men. For true it is,

All goods are good to good men that well uſe them,
But they are bad to fools who do abuſe them.

And thereupon ſaith *Du Bartas*,

I know to man the earth ſeems (altogether)
No more a mother, but a ſtep-dame rather;
Becauſe (alas) unto our loſſe ſhe bears
Bloud-ſhedding Steel, and Gold, the ground of cares:
As if theſe metals, and not mans amiſſe,
Had made ſinne mount unto the height it is:
To pick a lock, to take his neighbours purſe,
To break a houſe, or to do ſomething worſe;
To cut his parents throat, to kill his prince,
To ſpoil his countrey, murder innocence.
For, as a cask, through want of uſe grown fuſtie,
Makes with his ſtink the beſt Greek malmſey muſtie:
So Gods beſt gifts, uſurpt by wicked ones,
To poiſon turn through their contagions.

What pains do not men take to winne gold? every man hath one way or other to hunt after it: but the Alchymiſt, deſpiſing all other wayes, as ſlow, unnaturall, and unprofitable, laboureth, either to help nature in her work,

work, as of unperfect metals to make perfect, or elſe to force nature to his purpoſe, by his quinteſſences and Elixers; ſo that what by purging, what by concocting, what by mixing of Sulphur and Quickſilver, and much other like ſtuffe, at length he turneth the wrong ſide of his gown outward, all the teeth out of his head, and his bodie from health to a palſie, and then he is a Philoſopher, and ſo he muſt, nay, will be called.

It is ſaid of Gold that it waxeth cold towards daylight: inſomuch that they who wear rings of it, may perceive when the day is ready to dawn.

Silver.

Silver is the moſt pure metall next unto Gold: it hath an indifferent good concoction, but it wanteth ſufficient heat in the mixture, and thereupon it looketh pale. It is a metall begotten of pure white Mercurie, and of cleare white Brimſtone or Sulphur.

Pliable metalls leſſe pure.

The leſſe pure pliable metalls, conſiſt ſome of them of more Brimſtone; ſome, of more Quickſilver: neither are any of theſe two ſo pure, as thoſe in the mixture of Gold and Silver.

Braſſe and *Copper.*

Braſſe is an impure metall, conſiſting moſt of a red and thick Sulphur, and of a little Quickſilver ſomething impure: that which cometh from *Cyprus* is called *Copper*, and is the pureſt, as being of beſt digeſtion, and neareſt unto Gold; * *Braſſe*, *Latten*, and ſuch like, being no other then divers kindes of *Copper*. In ancient time, this metall was in greater eſteem then Iron: for they did not onely make their armour of it, but their bucklers alſo and their lances; becauſe they would not be worn, either with age or uſe.

* Some ſay Braſſe is not naturally, but artificially made.

Copperas.

Copperas is a minerall of a neare nature unto Braſſe or Copper: it is ſaid by ſome to be mixed of humours ſtrained by drops into ſmall holes. And perhaps it is nothing elſe but the more raw and impure ſubſtance of that which is the matter of Copper, with leſſe Quickſilver

in it, and that alſo of a baſer qualitie. It is hot and drie in the fourth degree, vehemently binding, being of great force to ſeaſon and preſerve raw fleſh, (as ſome affirm) and is alſo good to beget ſound fleſh in feſtered ſores, and to ſtench bloud. It is of a green, yellow, and a skie colour: but the beſt hath white ſpots in it. See more afterwards in *Vitriol*.

Iron.

Iron is a common metall, neceſſary for the uſe of mans life, engendred of a moſt impure Quickſilver mixed with a thick Sulphur impure and aduſt. Or thus; It is an impure metall conſiſting of much crude, earthie, aduſt Sulphur, and a modicum of filthie and bad Mercurie. This (ſaith the Philoſopher) although it be hard, yet by daily uſe it is worn and waſted: the reaſon being in regard that it hath in it leaſt of Mercurie, and moſt of an earthie Sulphur. The quenching it in water makes it harder and harder: but if it be quenched in the juice of bean-ſhells or mallows, it becometh ſoft: and ſo alſo doth the often heating it, and cooling it without quenching. [h] *Plinie* calleth it *optimum peſſimúmque vitæ inſtrumentum, the beſt and worſt inſtrument of life.*

How to ſoften Iron.

[h] *Lib. 34. cap. 14.*

Steel.

Steel is a kinde of Iron, but the pureſt and the hardeſt; or Iron refined. Naturall ſteel, which we call *Chalybs*, in times paſt was gotten out of a place in Thracia, where the people called *Chalybes* inhabited: their uſe was to go naked, and digge this metall out of the earth.

Metalls conſiſting moſt of Mercurie, are theſe; *Lead*, and *Tinne*.

Lead.

Lead is a raw and indigeſted metall, but of better digeſtion then commixtion: for it is mixed with a groſſe earthie ſubſtance, which cauſeth it to be in colour ſo black, and ſo ready to foul. It is begotten of much unpure, thick, and droſſie Mercurie; and by refining is made whiter. The kindes of this are varied by reaſon of the matter whereof it conſiſteth, and by reaſon of the heat

by which it is decocted: and thereupon it comes to paſſe that we have one ſort which we call *Black-lead*; another farre whiter and clearer, as being better concocted, and more purely compoſed. It is of a cold and binding nature; and if it lie in the wet, moiſture will increaſe the weight. England hath ſtore of it.

Tinne.

Tinne, whereof great plentie alſo groweth in the Weſt parts of England, in beautie and colour cometh neareſt unto Silver; and of Silver wanteth nothing but ſoliditie and hardneſſe. Some think that it is compoſed of Silver and Lead: but the more common opinion is, that the greateſt part of it is Mercurie, white without, and red within, having a portion alſo of Brimſtone or Sulphur not well mixed, being as it were Lead whited with Silver: for it is a raw and undigeſted metall, very porous and uncompact, which cauſeth it to craſh when it is either broken or bitten. And thus farre of metalls pliable.

Metalls leſſe pliable which are hard.

The leſſe pliable (as I ſhewed in the table) are either hard, or brittle; & cannot be eaſily hammered, wrought, or melted to a deſired form.

Stones.

The hard ones, are all kinde of ſtones. And of ſtones, together with bodies friable or brittle, it is doubted whether they be in the number of metalls or no; becauſe there is great difference in the matter of their compoſure, &c.

To which it is anſwered, that although they be not in the number of ſuch kinde of metalls as are pliable, and will melt; nor yet abound with that matter of mixture which they do: neverthеleſſe they may bear the name of metalls, according to that generall name ſpecified in the derivation of the word *Metalla*. And in that regard I made a difference of metalls, and drew them out in the former table. Wherefore I proceed: and following them who derive ſtones after this manner, I ſay that ſtones

ſtones are bodies perfectly mixt, without life, hard, of a drie and an earthie exhalation, mixed with a certain unctuoſitie; and by the durance of time, together with the force of heat and cold, and a minerall vertue, conglutinated or knit together. Or thus; they be engendred of a watrie moiſture, and fat earth mixed hard together. By which it appeareth that the matter of ſtones is a watrie humour, and a thick unctuous earth: which is not ſo to be underſtood as if the other two elements were ſeparated from their mixture; but becauſe they have not ſuch precedencie as the former. And for their efficient cauſes beſides the minerall vertue, it is ſaid to be heat and cold. Heat bringeth the ſlow humid unctuous matter through the thin parts of the earth (as the Philoſophers affirm) and cold condenſeth it, and makes it thick. They live not with a vegetative life, as plants and trees which have their nouriſhment from within; but their augmentation proceeds from an outward accretion by the appoſition of particulars adhering to them, when they lie in place convenient: and, in time, their vertues may be abated, by being long out of their right *Ubi*; in which regard ſome ſuppoſed that they had life, and died.

What ſtones are; and whereof they conſiſt.

Stones live not a vegetative life.

The common ſtones are of a more impure and groſſe matter then the other. Some whereof are ſolid; ſome more full of pores.

Common ſtones.

In the ſolid, the parts are more continued, and better compacted: yet ſo, as ſome have a kinde of ſhining in them; others are dark and dull. The ſhining ſolid ſtones, are chiefly all kinde of marbles: of which I finde three ſorts. 1. *Alabaſter*; which is of colour very cleare and white. The Greeks call it ἀλαβαστρίτης· and about Thebes in Egypt it is eſpecially found; there being the greateſt plentie of it. 2. *Ophites*, which is a kinde of marble having ſpots like a ſerpent. 3. *Porphyrites*, which is the red marble, mixed or interlaced with white ſpots. The

Alabaſter.

Ophites.

Porphyrites.

Flint. *Marchaſite.* *Cos.* *Corticula.* *Smiris.* *Saxum.*

not ſhining ſolid ſtones are theſe, and the like: 1. The *Flint.* 2. The *Marchaſite,* or that whereof they make milſtones; which being ſtruck with Steel, procures fire, like to the *Flint.* 3. *Cos,* which is of power to ſharpen edgetools; wherefore we commonly call it a whetſtone. 4. *Corticula,* or *Lydius lapis;* which is of force to trie the truth in metalls: we therefore call it a touch-ſtone. 5. *Smiris,* which is an hard ſtone wherewith glaſiers cut their glaſſe: ſome call this an *Emery.* 6. Thoſe which we name wheaten ſtones, or any kinde of rockie ſtone; or ſuch as may be comprehended under the word *Saxum.*

Pumex. *Tophus.*

Common ſtones leſſe ſolid, are the *Pumex* and *Tophus.* 1. The *Pumex* is of a ſpungie nature, and is apt to ſwimme by reaſon of the light matter whereof it conſiſteth. 2. The *Tophus* is a ſand or gravell ſtone that may eaſily be rubbed to crumbes.

Precious ſtones.

But come now to precious ſtones: and amongſt them we have the noble, and the leſſe noble: both which ſorts are begotten of a more ſubtil and thin matter then common ſtones, and foſtered with a more ſingular influence of the heavens. My task were (in a manner) endleſſe to reckon * all ſorts: yet ſome muſt be remembred.

* *Vide Plin. lib.* 37.

Adamant.

The more noble precious ſtones, are, 1. The *Adamant* or *Diamond,* the moſt precious of all ſtones, and the hardeſt; inſomuch as it cutteth glaſſe, and yeeldeth not either to ſtroke of hammer or fire: notwithſtanding it is ſoftened with [h] Goats bloud being warm, ſoon after ſhe hath eaten parſley or drunken wine.

h Some ſay that the bloud of a Deer or Lion will alſo mollifie it, and make it fit to be broken: melted Lead alſo mixed therewith in a burning furnace, doth the like.

Plinie maketh 6 kindes of *Adamant:* The 1. is *Adamas-Indicus,* being neare akin to cryſtall; for in colour and cleareneſſe it is much like it: and in quantitie it is in bigneſſe as a filbert or haſell nut. The 2. is *Adamas Arabicus,* like to the other, excepting that it is ſomething leſſe. The 3. is called *Cenchros*, anſwering in bigneſſe

neſſe to the grain of Millet. The 4. kinde is *Adamas Macedonicus*; and this is like to the ſeed of a Cucumber. The 5. is *Adamas Cypricus*; this is found in *Cyprus*, and tendeth ſomewhat to the colour of braſſe. The 6. is called the * *Siderite*; which, although it be heavier then the other, yet it is of leſſe vertue and eſteem; the colour whereof is like to the colour of iron: And this, as alſo that of *Cyprus*, are tearmed by[i] *Plinie*, degenerate kindes; becauſe they will be broken by the hammer, or otherwiſe with blowes; and may alſo be cut or raſed by other Adamants. All theſe kindes, the two firſt onely excepted, are ſaid to have their place of generation amongſt the Gold, and in golden Mines.

* Some ſay, that it hath power to ſet variance between men.

i *Lib.* 37. *cap.* 4.

Saphire.

2. The *Saphire* is a very cleare gem, very hard and of a skie colour, growing in the Eaſt, and ſpecially in India: the beſt ſort hath in it as it were cloves enclining to a certain redneſſe. This ſtone is ſaid to be of a cold nature: and being drunk it preſerveth chaſtitie, corroborateth the heart, helpeth againſt the ſtinging of ſerpents, poyſon and peſtilence.

Smaradge.

3. The * *Smaradge* is of a green tranſparent colour, making the aire green neare about it. The qualitie of this ſtone, in phyſick, is much like to the former, or of more vertue: for it is ſaid to defend the wearer from the falling ſickneſſe. And ſo greatly doth it favour chaſtitie, that if it be worn whileſt the man and the woman accompanie themſelves together, it breaketh in the very act.

* *Plinie* maketh 12 ſorts of this ſtone, *lib.* 37. *cap.* 5.

Hyacinth.

What falſe friends are like unto.

4. The *Hyacinth* is of a watriſh colour, or rather ſomething blew like a violet. It is exceeding hard, and cloudy in the dark, but pure and cleare by day: like unto a falſe flattering friend, whoſe blithe looks are onely ſeen in time of proſperitie; but gone when the cloudie night of dark adverſitie beginneth to approach: For where true friends are knit in love, there ſorrows are ſha-

red equally; and beſt are they perceived in a doubtfull matter.

Si fueris felix, multos numerabis amicos:
Tempora ſi fuerint nubila, ſolus eris.

Whil'ſt thou art happy, many friends thou haſt:
But cloudie times thoſe many friends do waſte.

Moreover, this ſtone is of a cold qualitie, moderating the ſpirits of the heart and of the other parts; alſo it cauſeth mirth, and being worn obtaineth favour, as ſome report.

Amethyſt. [k] Ariſtotle affirmeth no leſſe.

5. The *Amethyſt* is a gem or precious ſtone, which in colour reſembleth a deep claret-wine; and (as [k] ſome ſuppoſe) it hath power to reſiſt drunkenneſſe.

Carbuncle

6. The *Carbuncle* (of which *Plinie* writeth in his 37 book and 7 chapter) is a gem ſhining with a light like fire, repreſenting a flame. Some ſay it is the nobleſt, and hath moſt vertues of any precious ſtone.

Calcedon.

7. The *Calcedon* is of neare nature to the *Carbuncle*: it is of a purple colour, and ſhineth like a ſtar: it is ſaid to expell ſadneſſe and fear, by purging and chearing the ſpirits: it alſo hindreth ill and fearfull viſions or dreams in a mans ſleep.

Rubie.

8. The *Rubie* is a red gem, ſhining in dark like a ſpark of fire: it cleareth the ſight, and expelleth ſad and fearfull dreams.

Chryſolite.

9. The *Chryſolite* is a ſtone of a golden colour, and ſhining, but brighteſt in the morning. It is good againſt melancholy; and fire is much hurtfull unto it.

Aſtarite.

10. The *Aſtarite* is a cleare ſhining Cryſtalline ſtone, having in the midſt the image of a full moon: or being turned about, the ſunne or the moon may be ſeen ſhining within it. *Plin. lib.* 37. *cap.* 9.

Selenite. A ſtone which follows the courſe of the Moon.

11. The *Selenite* is a tranſparent gem like glaſſe: it hath a kinde of ſpot in it which bears the image of the

moon, increaſing and decreaſing as the moon; and therefore it is called the *Moon-ſtone.Ibid. cap.* 10. It is of a white, black, and yellow colour: and the ſcrapings of it heal the falling ſickneſſe.

12. The *Sardonix* is a cleare gem, in colour repreſenting the nail of a mans hand: it preſerveth * chaſtneſſe, and healeth ulcers about the nails. *Albertus Magnus* witneſſeth that if it be hanged about the neck, it doth greatly corroborate the ſtrength of the body.

* The Indians therefore uſed to hang it about their necks.

Achates.

13. *Achates* is a ſtone of divers colours, inſomuch that the colours of other gems are not ſufficient for it: ſometime it is black with white veins and yellow: ſometime it is as it were ſprinkled with bloud; & (like a *Proteus*) is of ſo many colours that one would ſcarce beleeve it were one and the ſame ſtone. Eagles (as is ſaid) lay it in their neſts to preſerve their young from poyſon. And *Pyrrhus*, K. of *Epirus*, had one of theſe gems in a ring, in which were the nine Muſes to be ſeen, and Apollo with his harp; not engraven by art (ſaith[l] *Plinie*) *ſed ſponte naturæ ità diſcurrentibus maculis*, but on natures own accord the ſpots being ſo diſpoſed *Plinie* alſo ſheweth the divers kindes of this ſtone in the 10 chapter of his 37 book, affirming that it is good againſt poyſon, and ſtinging of ſcorpions; and is ſuppoſed to procure eloquence, and make men wiſe and fair-ſpoken. See more in *Scal. Exerc.* 117.

How Eagles keep their young from poyſon.

l *Plin. lib.* 37. *cap.* 8.

Sardius.

14. *Sardius* is a kinde of *Onyx*, of a blackiſh or deep yellow colour. [m] *Plinie* ſaith it is a common ſtone, and was found firſt about *Sardis*, but the beſt are neare *Babylon*. Some call it a * *Corneoll*. It ſtoppeth bleedings at the noſe, ſharpens the wit, and makes men cheerfull and merrie, and ſet in a ring it reſtraineth anger.

m *Ibid. cap.* 7.

* It helpeth to ſtop fluxes; and is good againſt pyles in the fundament.

Jaſper.

15. *Jaſper* is a green ſtone, pointed with ſpots like drops of bloud.

Topaz.

16. The [n] *Topaz* is a precious ſtone whereof there be two

n *Ibid. cap.* 8.

two kindes; one of gold colour caſting beams in the ſun; the other of a ſaffron colour, not ſo good as the other. This ſtone being put into boyling water doth ſo preſently cool it, that one may forthwith pull it out with his hand, and feel no ſcalding heat: or being laid to a wound, it ſtencheth bloud.

A ſtone that will ſuddenly cool ſeething water.

Emerald.

17. The *Emerald* is a precious ſtone of a green colour, ſomething like unto the *Smaradge*.

Opall.

18. The *Opall* is a precious ſtone of divers colours, wherein appeareth the fiery ſhining of the *Carbuncle*, the purple colour of the *Amethyſt*, and the green ſhew of the *Emerald*, very ſtrangely mixed together.

Turcois.

A compaſsionate ſtone; the reaſon whereof is ſhewed in *Corrall*.

19. *Turcois* is dark, of a skie colour, and greeniſh. It helpeth weak eyes and ſpirits, refreſheth the heart; and, if the wearer of it be not well, it changeth colour and looketh pale and dim, but increaſeth to his perfectneſſe as the wearer recovereth to his health.

The ſympathizing Turcois true doth tell,
By looking pale, the wearer is not well.

Now follow ſome ſuch as are leſſe noble gemmes.

Cryſtall.

1. *Cryſtall* is a kinde of Ice made of waters which congeal themſelves by a vehement and very long cold, as for the ſpace of 10 or 12 continuall yeares. There is ſome quantitie thereof found in the Alps, and other cold mountains: and being poliſhed, men make thereof works of divers faſhions; as Veſſels, Glaſſes, Mirrours or Looking-glaſſes, and other common things. His qualitie is ſaid to be binding; and therefore his powder is helpfull in Laxes, and increaſeth milk in womens breaſts. Alſo another kinde is ſometimes found in the earth; as in ſome places of Germanie.

Good againſt Laxes.

Corrall.

2. *Corrall* is a ſtone growing in the ſea like a ſlimie ſhrub, which by the aire preſently is made hard and turned into a ſtone. The Greeks call it λιθόδενδρον; which is as much as if you ſhould ſay, *A ſtonie ſhrub*. It is taken up

up full of moſſe, but being unbarked, it appeareth cleare in its proper colour.

The red and branchie *Corrall* cometh ſomething neare in nature to the *Turcois*; for when it is worn by thoſe who are ſhortly to fall ſick, it waxeth pale and wan: the reaſon whereof may be, in that his tender ſubſtance is affected by the bad vapour, which is not ſo ſoon perceived in the bodie, becauſe at the firſt it is not ſtrong enough to afflict it. This ſtone, they ſay, is good againſt the falling ſickneſſe, ſore eyes, and the ſtone. Alſo know that there be 3 kindes of *Corrall*; white, black, and red.

How it comes to paſſe that there ſeems to be compaſsion in a ſtone.

Bloudſtone

Hæmatites, or the *Bloudſtone*, is a ſtone outwardly of a bloudie colour, inwardly like iron; and of ſuch hardneſſe that the file can ſcarcely bite it. The qualitie of this ſtone is to ſtench bloud, either in a wound, or at the noſe: alſo, it will eat proud fleſh out of a ſore. It is to be found either in Ethiopia or Arabia.

Loadſtone.

4. *Magnes*, or the *Loadſtone*, is coloured like iron, but blewer, and tending to a skie colour: it hath vertue not onely to draw iron to it ſelf, but alſo to make any iron on which it is rubbed, to draw iron alſo. It reſpecteth the North and South pole; and loſeth not this ſecret vertue, unleſſe it be rubbed with onions or garlick: which is certainly true, as may be proved by cutting any of the foreſaid roots with a knife touched by the Loadſtone. Some affirm, that phyſically uſed, it purgeth the dropſie, and helpeth the flux.

Alſo, it is ſuppoſed that there are certain magneticall hills, or mountains of Loadſtone under the artick pole, and they are the cauſes why things touched with this ſtone, tend alwayes that way. But learned * *Scaliger* (as well he might) laugheth at this conceit. Again, others (with better probabilitie) are perſwaded that the Loadſtone inclineth towards the ſtarres of the pole by a ſecret

* In his exerciſes againſt Cardan.

ſympathie; even as certain flowers and plants turn themſelves with the ſunne. And for the attractive vertue which it alſo hath in drawing iron, it is ſuppoſed to be alſo by a kinde of ſympathie and likeneſſe of ſubſtance; there being two cauſes of attraction: one is *Similitudo*; and the other is *Fuga vacui*. Heat draweth in *Fuga vacui*; and in the ſimilitude of ſubſtance, every part is ſuppoſed to draw its own proper nouriſhment. Whereupon (ſaith [o] one) ſith iron is as it were the aliment or nouriſhment of the Loadſtone, it therefore draweth iron to it. And, that iron is a kinde of nouriſhment to the ſaid ſtone, appeareth in that the filed duſt of iron covering it doth long preſerve it; and in tract of time the duſt will be conſumed; augmenting thereby the accretion of the ſtone. Not that it eateth, or is nouriſhed by it as a thing having life: but even as the elements are moved to their places, as being their end and perfection; ſo it is in the attraction between this ſtone and iron, and the accretion which is cauſed by their reall contaction.

[o] *Magir. Phyſ.* where, by experience he contradicteth *Scaliger*.

This I think may be ſuppoſed. But I leave it to the readers further enquirie, and abler examination.

Aſbeſtos.

5. *Aſbeſtos* is a ſtone of an iron colour, which being once fired can hardly be ever quenched. *Plinie* ſaith that it is to be found in the mountains of Arcadia. *Lib.* 37. *cap.* 10.

Dendritis.

6. *Dendritis* is a white precious ſtone, which being put under a tree, keepeth the ax that cutteth it, from dulling. *Idem, lib.* 37. *cap.* 11.

Galactites.

7. *Galactites* is of an aſh-colour; it ſeemeth to ſweat out a kinde of liquour like unto milk. [p] *Plinie* ſaith it increaſeth milk in nurſes, and keeps the mouth of the childe moiſt if it be hanged about the neck, &c. ſome alſo ſay that it helpeth running of the eyes, and ulcers.

[p] *Lib.* 37. *cap.* 10.

Amphitane.

8. *Amphitane* is a precious ſtone of gold colour, ſquare, and of the nature of the Loadſtone almoſt, excepting

cepting that it is ſaid to draw gold unto it. *Plinie* ſaith that this ſtone is alſo called *Chryſocolla*, and is found in a part of India where the ants caſt up gold from their hills. *Lib.* 37. *cap.* 10. A ſtone which hath power to draw gold to it.

9. *Androdamas* is a ſtone hard, and heavie; bright like ſilver, and in form like divers little ſquares. It putteth away rage of lecherie: and (as the magicians think, ſaith *Plinie*) it ſtoppeth the force of furie and anger. *Androdamas.* *Plin. Ibid.*

10. *Panſebaſtos* is a precious ſtone taking away barrenneſſe. *Panſebaſtos.*

11. There is alſo in *Plinie*, mention made of the ſtone *Thracius*, which being ſteeped in water burneth and ſprinkles, but it is quenched with oyl. *Lapis Thracius.*

12. *Amiantus* is a ſtone like unto alume: this, being put into the fire, is not hurt nor ſlurried, but rather more bright and cleare. Unto which, one patient in troubles and adverſities, may be likened: for his afflictions harm him not, but better him; making him look in the middeſt of a fierie triall, not like one ſlurried with repining, but cleare and beautifull in the ſight of heaven, by refining. *Amiantus.* One patient in trouble, what he may be likened unto.

But I conclude; and with him who writeth thus, cannot but ſay,

Oh mickle is the pow'rfull good that lies
In herbs, trees, ſtones, and their true qualities:
For nought ſo vile that on the earth doth live,
But to the earth ſome ſecret good doth give.
And nought ſo rich on either rock or ſhelf,
But, if unknown, lies uſeleſſe to it ſelf.
„ *Therefore who thus doth make their ſecrets known,*
„ *Doth profit others, and not hurt his own.*

Now follow metalls of a more friable and brittle nature. They are more mollified bodies, may be eaſily brought into crumbes or duſt, are called precious earths ſomething clammie, and of a middle nature between ſtones and the leſſe pliable metalls. Theſe which follow are called metals of a more brittle nature.

Earth of Lemnos.

* In Conſtantinople the Apothecaries and Druggiſts ſell of this earth in cakes, on which are ſtamped certain Arabian characters. On the ſixth of Auguſt it is digged forth at Lemnos with many ceremonies.

Firſt I begin with *Terra * Lemnia*, which is an exceeding red earth of *Lemnos* iſle, digged in a red hill. In old time this had *Diana's* ſeal upon it, printed by her prieſts, who were onely wont to waſh this earth: and now, in *Sileſia* and *Haſſia*, there is almoſt as good earth found. It is of force to reſiſt poiſon, and to heal old putrified or feſtered wounds.

Vermilion.

2. *Cinoper* is a ſoft red ſtone, found in mines; otherwiſe called *Vermilion:* of which *Plinie* ſpeaketh in his 33 book at the 7 chapter, ſaying, that in times paſt it was not onely of great, but of ſacred eſteem among the Romanes: for they painted their gods with it; as he tells us of Jupiters image, whoſe face was coloured with Vermilion. So *Virgil* alſo, ſpeaking of the ſhepherds god *Pan*, ſaith that he was ſeen,

Eclog. 10.

Sanguineis Ebuli baccis, Minióque rubentem,
With bloudie Walwort berries ſtain'd,
And with Vermilion red.

Neither were their gods alone thus beautified, but their own bodies alſo, in publick feaſts and triumphing ſolemnities; as we reade again in *Plinie*, that *Camillus*, when he triumphed in Rome, was painted with this Vermilion.

Bole Armoniack. Good againſt the plague.

3. *Bole Armenian*, or *Bole Armoniack*, is of a pale red colour, as eaſie to break as chalk; being of a very binding nature, and of great vertue againſt the plague: and ſeeing it drieth, it profiteth againſt all fluxes.

Oker.

4. *Oker* is a light clayie earth, of a red or yellow colour.

Arſenick.

5. That which the Grecians call *Arſenick*, the Latines call *Auripigmentum:* but I had rather that *Arſenick* ſhould be the generall name, and that it be divided into 3 kindes; namely, into white, red, and yellow *Orpment*. The white is that which is the common rats-bane. Red *Arſenick* is called *Sandaracha*; of a bright red colour,

uſed of painters, and found in mines of gold and ſilver. Yellow *Orpment* is the right *Auripigmentum*; it is like unto Brimſtone. This (if it be our common *Arſenick*) is a very dangerous drug: for it is hot and burning, ſo as it gnaweth the ſtomack, & pierceth the bowels, producing a fever with an intolerable and an unquenchable thirſt.

6. *Red lead* comes ſomething neare to the nature of Vermilion: and (as **Plinie* writeth out of *Homer*) was uſed by the Trojans, and honoured before they knew Vermilion. For (as *Theophraſtus* in *Plinie* witneſſeth) *Callias* of Athens firſt found out Vermilion, thinking indeed to draw gold out of it. Howbeit, *Red lead* is no minerall, but made artificially.

Red lead.
**Plin.lib.33.cap.7.*

7. *Terra Samia* is a white, ſtiffe, and tough earth coming from the iſle *Samos*. *Plinie* makes two kindes of it: the one more glutinous then the other; the other more cloddie, leſſe glutinous, and whiter. He ſaith there be thoſe who preferre the firſt as beſt. They are either of them good againſt ſpitting of bloud. *Lib.* 35. *cap.* 16.

Earth of Samos.

Good againſt ſpitting of bloud.

8. *Chalk* is a white earth, which was firſt found in *Creet*, and therefore in Latine it is called *Creta*: But now we finde of it in many other places. *Plinie* makes many kindes of *Chalk*; all which are not white: as in his 34 book at the 17 chapter is apparent; *Fullers earth* being a chief kinde among them: and that, by others, is called *Creta Taſconia*. *Brown Umber* cometh alſo neare to the nature of the ſaid earth.

Chalk.

Fullers earth.

Brown Umber.

Calx is *Lime-Chalk*, which after it is burnt will be fired with water, but quenched with oyl; as authours write. It is called *Calx viva*, becauſe it contains a kinde of hid fire in it.

Lime-Chalk.

10 *Ampelite* is a pitchie earth, cleaving and black; being much like to that which we call Pit or Sea-coal, as ſome imagine: and (haply) the diverſitie of climate cau-

Black earth like our coals.

 ſeth

ſeth the difference. There is alſo found another earth, which * *Plinie* calls *Pignitis*, and ſome others *Pnigitis*, and it is as black as this.

* *Lib.* 35. *cap.* 16.

Bitumen.

11. *Bitumen* is a fat and tough moiſture, like Pitch; and is called *Earthy Pitch.* Or thus: It is a kinde of clay or naturall Lime, clammie like Pitch; and is to be found in many countreys of Aſia. They who builded the tower of Babel, uſed this in ſtead of Morter, as appeareth in Gen. chapter the 11. And ſo did others alſo in old time, making it in like manner burn in lamps in ſtead of oyl.

Two kindes of Bitumen.

This pitchie earth is of two kindes: For it is either Hard, or Liquid.

Hard Bitumen.

The Hard is more ſtrongly concreted then the other; being like unto clods of the earth, or coals. Or (as ſome affirm) it is tough and moiſt at the firſt, ſwimming on the water, but being taken forth it waxeth hard. Of this kinde is 1 *Aſphaltus*, 2 *Piſſaſphaltus*, 3 *Succinum.*

Three kindes of hard Bitumen.

Aſphaltus.

Aſphaltus is a black *Bitumen*, hard like ſtone-pitch, cleare, and ſmelling ſcarce ſo ill as Pitch. It is found throughout Babylon, and eſpecially in the lake *Aſphaltites*; neare unto which ſtood thoſe cities of Sodome and Gomorrah, that were conſumed with fire and brimſtone: and where alſo do as yet grow apples, which (according to *Solinus*) are fair and freſh without, but within are full of Sulphur; and being handled they fall all to aſhes: In which they are Emblemes of the vanities of this world, alwayes ſeeming more then they are.

Worldly vanities like to Sodome apples.

Piſſaſphaltus.

Mummie.

Piſſaſphaltus is ſaid to be *Mummie*, or a kinde of *Bitumen* ſomewhat * differing from *Aſphaltus*, and is not ſeldome found in clods rolling from mount *Ceravine* to the Sea; as authours witneſſe. In ſtead of this, it is ſuppoſed that we have counterfeit *Mummie* often out of Syria,

* As having more pitch in it according to *Plin. lib.* 35. *cap.* 15.

Syria, Egypt and ſome other places, which is taken from poore mens bodies that die there: For in ſtead of Myrrhe, Aloes, Caſſia, &c. (which the rich men have in their burialls and embalmings) the poore are dreſſed and ſtuffed up with *Bitumen*. This therefore which is but counterfeit, is nothing elſe but a corrupted humour taken out of old tombes, which there droppeth from embalmed bodies: and moſt ridiculouſly (in my opinion) do they erre who ſay it is made of mans fleſh boyled in Pitch. It is hot in the ſecond degree, and good againſt all bruiſings, ſpitting of bloud, and divers other diſeaſes.

Poore folk are glad of any thing.

Good againſt bruiſes, &c.

Succinum is a Bituminous ſuck or juice of the earth, being hard as if it were a kinde of ſtone. It is of three colours; White, Yellow, and Black. The White and Yellow are called *Amber*: and the Black is *Jet*.

Succinum.

Amber.

Jet.

They make beads of *Amber*. And ſome would have this *Amber* to be rather a gumme growing on a tree, then to be a ſuck of the earth. The tree, by ſome, is called *Ibex Romana*. But (as others report out of *Dioſcorides*) it falleth in manner of a liquour from Poplar trees into the riuer *Po* in Italie, where it congealeth and becometh hard, in that form as we ſee it.

Jet hath more plentie of fatneſſe in it then *Amber*; and therefore it will burn like a candle, and ſmelleth like the Pine-tree. It hath an attractive vertue in it to draw chaffe, ſtraws, and ſuch other light ſtuffe unto it, eſpecially if it be rubbed till it be hot. And theſe are the kindes of Hard *Bitumen*.

The Liquid and ſoft, is like an oyly moiſture flowing, and is of divers colours according to the varietie of the place: but the white is ſaid to be moſt precious. And for the kindes, the chief are theſe; *Naphtha*, and *Amber of Arabia*.

Soft Bitumen, and his kindes.

Naphtha, is a liquid Bitume like unto chalkie clay, or (as it were) the fat of Bitume; whereunto if fire

Naphtha.

Water cannot quench this liquour.

fire be put, it kindleth in ſuch wiſe, that if a little water be caſt thereon, it burneth more vehemently: And indeed it hath in it ſuch a fiery force, that it will draw fire unto it, although it be farre off. When it is found to flow out of rocks, then it is called *Naphtha Petreolum*; and by ſome, taken for oyl. In the iſland Sicilie are fountains, from whence great ſtore of this liquour floweth, which they frequently burn in Lamps.

Amber of Arabia.

Amber of Arabia, is *Bitume* of an aſh colour, and of a fragrant ſweet ſmell, deſired and ſought after as a moſt precious merchandiſe. It is found in *Arabia felix*, neare unto a town which is called *Sichris*. Howbeit *Olaus Magnus* calleth that *Amber*, which is *Sperma Ceti*: but then it is *Ambergreeſe*, and rather the ſpawn then the ſeed.

Alume. Lib.35.cap.15.

12. From *Bitume*, I come to *Alume*: which is ſaid to be a ſalt ſweat of the earth, according to *Plinie*; congealing it ſelf with a glutinous earth and water.

It is either white or black.

The white is either cleare or thick.

Roch-Alume.

The cleare is ſofter and fatter then the other: This is *Roch-Alume*; and if paper be waſhed with this, it will bear ink very well, although it be bad.

Harder Alume. Black Alume.

The thick is more hard, and of a grayer colour. Black *Alume* is found in *Cyprus*: and with this, gold is purified and purged. They that deſire more, may reade *Plinie* in his 35 book at the 15 chapter.

Vitriol.

13. *Vitriol* is a ſuck of the earth concreted, obtaining the perſpicuitie of glaſſe: ſome call it *Chalcanthum*, which word may ſignifie either *Copperas* or *Vitriol*. This ſuck is very poyſonous.

Salt.

14. *Salt* is called *Sal, à ſaliendo*; becauſe when it is put into the fire, it skippeth and danceth. It is a friable

metall,

metall, begotten of a wateriſh and earthie moiſture, mixt and decocted together: the efficient cauſe whereof is the heat of the ſunne and other ſtarres; who, out of a ſalt matter, drawing away the thinner and the ſweeter parts, leave the earthie ſtill behinde, which being throughly roſted by heat, become ſalt. For there be two things requiſite in a ſalt ſavour: The firſt, are drie and earthie parts; The other, is an aduſtion of the ſaid parts, as Philoſophers witneſſe. Salt hath force to binde, to ſcowre and purge, to diſperſe, make thin, and the like: which thing Phyſicians can beſt declare.

There be 2 kindes; Naturall and Artificiall. The Naturall, is digged Salt. The Artificiall, is made or boiled Salt.

Salt is either Naturall, or Artificiall,

Digged Salts are gotten either from the earth, or from the waters; as ſome diſtinguiſh.

Salts digged out of the earth, be principally of foure kindes.

The firſt is *Salt Ammonaick*. This is found in Africa under ſand, and is ſomething like unto alume. It is ſaid to be hot and drie in the fourth degree, and ſerveth to purge ſlimie humours. Some affirm that that which Apothecaries ſell in black clods, is made of Camels ſtale; and becauſe ſtore of Camels be in Armenia, it is called *Armeniack*.

Salt Ammonaick.

The ſecond is *Salt of Indie*, of which you may reade in *Plinie*, *lib.* 31. *cap.* 7. that it is digged out of mount *Oromene*; and that the King hath there a greater yearely penſion or cuſtome, then out of gold and precious ſtones.

Salt of Indie.

The third is called *Salt-gem*, which is a kinde of glittering Salt; white, and ſhining after the manner of Cryſtall. Sometimes it is alſo called ſtonie, marblie Salt; Salt *Dacian*, or *Sarmatick* Salt.

Salt-gem.

The fourth is called *Salt-nitre:* and this is that which we call *Salt-peter*, found in drie places under ground, and in hollow rocks.

Gunne-powder and gunnes how invented, and when.

Of this is made that fatall duſt, called *Pulvis Bombardicus*, or *Gunne-powder:* the invention whereof was after this manner. A Germane Monk or Frier, of the order of S. *Francis*, whoſe name was *Bertholdus Swart*, being very ſtudious in Alchymie, was one evening (for the finding out of ſome * experiment) very buſie in tempering brimſtone, ſulphureous powder of dried earth, and certain other ingredients, in a mortar, which he covered with a ſtone: and growing dark, he took a tinder-box to light him a candle; into which whileſt he aſſayed to ſtrike ſome fire, a ſpark by chance flew into the mortar, where catching hold of the brimſtone and ſalt-peter, it fired with a ſudden flaſh, and violently blew up the ſtone. The cunning Chymiſt, gueſſing which of his ingredients it was that produced this effect, never left till he found it out: then taking an iron pipe he crammed it full of the ſaid ingredient, together with ſome ſtones; and putting fire to it, he ſaw that with great furie and noiſe it diſcharged it ſelf. Soon after, he communicated this his invention to the *Venetians*, who having been often vanquiſhed by the *Genowaies*, did, by help of theſe bombards or gunnes, give them a notable diſcomfiture: which was in the yeare of our Lord 1380, as *Bucholcerus* writeth in his chronologie, ſaying, *Hoc tempore BOMBARDÆ ad hominum perniciem inventæ ſunt & excogitatæ à Bertholdo Nigro Chymiſta, & (ut quidam volunt) Monacho Germano.* Wherein we ſee that he calls them bombards invented for the ruine of men. For by theſe (ſaith he) it comes to paſſe, that now (in a manner) all the force of the footmen, all the ſplendour of the horſe, and all right warlike power, doth ſhamefully ceaſe, lie dead, faint, and dull. *Polydore* alſo ſaith, that of all other inſtruments which ever were deviſed to the deſtruction of man, the gunnes be moſt deviliſh. In which regard (ſith he was not well inſtructed con-

* *Polydore Virgil* ſaith he was making a medicine. *Lib.* 2. *cap.* 7. *de Invent.*

Polyd. Virg. lib. ut antea.

cerning

cerning the Almains name that invented them) he addeth yet thus much more, ſaying, *For the invention he received this benefit, that his name was never known, leſt he might for this abominable device be curſed, and evill ſpoken of as long as the world remaineth.* And in the continuation of *Carions* chronicle, by [q] *Caſpar Peucer,* it is alſo ſaid, that about the beginning of *Wenceſlaus* his reigne *That raging kinde of engine and tormenting torture (which from the ſound we call a* [r] *bombard) was found out by a Monk, the devil being the chiefeſt engineer or maſter-workman. For it was their care, that ſeeing the authoritie of idle ſuperſtitions ſhould decline and fade by little and little, (which through theſe authours had bewitched the mindes of mortalls, and caſt them into eternall deſtruction) this might therefore ſucceed, by them, the ſame authours, as another kinde of miſchief, which ſhould rage againſt their bodies, as that other had done againſt their ſouls.* To this purpoſe *Peucer*. And indeed an experiment of his ſpeech we then beheld, when the upholders of that tottering kingdome would have traiterouſly tried to have * ſent at once, even all the peers of this our land piece-meal into the aire. But *he that keepeth Iſrael ſhall neither ſlumber nor ſleep. The Lord himſelf was our keeper,* ſo that their ſulphureous fire could neither burn us by day, nor ſcare us by night: although *Faux* were taken the night before, among the barrells, and wiſhed that then (ſith he had done ſo much, and could do no more) his match with fire had toucht the powder.

Oh never let the mem'rie of that day
Flie from our hearts, or dully ſlide away.
God thought on us, that we remembring this,
Might think on him whoſe hand defendeth his.

But whither am I tranſported now? Theſe foure, although they be the principall kindes of ſalt digged from the ground, yet there be other alſo: amongſt which, those

[q] *Lib. 5. pag. 817.*

[r] *Bombarda vocatur à bombo, id eſt, ſonitu, qui βόμβος Græcè dicitur. Buch. in chronol.*

* In the powder treaſon, Anno Dom. 1605.

Salt of Spain.

thoſe Spaniſh mountains would be remembred, where there is a ſalt cut out, and drawn as ſtones are out of a quarrie; in which place it afterwards increaſeth, and filleth up the gap with more ſalt again. *Du Bartas* calls this the brine-quar-hill in Arragon.

Salt not digged from under ground.

And as for Salt digged out of waters or watrie places, or not digged from under ground, it is thus cauſed; namely, by the heat of the ſunne percocting thoſe waters which are extreamly ſalt. For when ſalt waters are throughly concocted by the ſunne, they are ſo dried, congealed, and thickened, that in their ſhores, by their banks, and often upon their very ſurfaces or ſuperficies, they render liberally good ſtore of Salt. Thus in the ſummer time is the Tarentine lake (of which *Plinie* ſpeaketh) turned into ſalt: the ſalt being in the ſurface of the waters, to the depth of a mans knee. So alſo in Sicilie, in the lake *Coranicus*. And in ſome rivers, the water is known to runne underneath in its ordinary courſe, whileſt the uppermoſt part is turned into ſalt: as about the Caſpian * ſtraits, which are called the rivers of ſalt; and alſo neare the *Mardi* and *Armenians*, whoſe countreys are in Aſia.

Plin. lib. 31. *cap.* 7.

* They are ſtraits about the Caſpian ſea, ſcarce the breadth of a wain.

Boiled Salt.

But leaving theſe, I come to the ſecond kinde of Salt, which is artificiall and made, or boiled ſalt. For although the matter be naturall, yet the making is by art. From whence it comes to paſſe, that of one and the ſame ſalt water, this man will boil better Salt then that man; and he then another. Yea, ſome, out of water leſſe ſalt, will boil and make better Salt, then others out of fountains more ſalt.

Many be the places where they make Salt after this manner, by boiling of ſalt water: neither is this kingdome of ours deſtitute of ſuch fountains or wells. For at the towns called the *Witches* in Cheſhire, there is a brinie water, which by boiling is turned into white Salt.

And the ſame water is ſaid to be as good to powder any kinde of fleſh, as brine: for within 24 houres it will powder beef ſufficiently. A great bleſſing of God to raiſe up ſuch ſprings for our uſe ſo farre within the land: as alſo an evident argument, that the Sea is made ſalt by the ſubſtance of the ground; of which I have ſpoken my minde already.

Salts neceſsitie.

And here unto all this, I could adde the neceſſitie of Salt; which is ſuch, that we cannot well live without it: and therefore it is the firſt thing that is ſet on the table, and ought to be the laſt taken away; according as one tranſlateth out of *Schola Salerni*, ſaying,

Salt ſhould be laſt remov'd, and firſt ſet down
At table of a Knight, or countrey clown.

This, I confeſſe (as pertinent) might be added; but it is now high time to put a period to the diſcourſe of this dayes work. Take the reſt therefore, all in one word; and then it is thus,

The eve and morn conclude the third of dayes,
And God gives to his work deſerved praiſe.

CHAP. VII.

Concerning the fourth day; together with ſuch things as are pertinent to the work done in it.

Sect. 1.

Being as it were a kinde of entrance into this dayes work, which treateth of the ſtarres and lights.

THe ſtructure of the earth being adorned with herbs, trees, and plants, in the third or former day; Moſes now returns to ſhew both how & when God beautified the heavens; bedecking that vaulted roof with ſhining lights and beauteous ſtarres: which like glittering ſaphires, or golden ſpangles in a well wrought canopie, do ſhew the admired work of the worlds brave palace.

And ſeeing this was not done before the ſprouting of the earth, it may well be granted that they are but fooliſh naturaliſts who will preſume to binde Gods mighty hand in natures bands, and tie him ſo to ſecond cauſes, as if he were no free or voluntarie agent, but muſt be alwayes bound to work by means.

And again, the Text declareth that the ſun, moon, and ſtarres, were all unmade before this preſent day: and yet it ſaith there was light before. But it was then a diſperſed ſhining, and now united to theſe bright lamps of heaven: that that riding, and they running like fierie chariots, might

might not onely rule the day and night, but alſo diſtinguiſh the better, and more harmoniouſly, the dayes from nights, ſeaſons, weeks, moneths, and yeares; and not onely ſo, but be alſo for ſignes of ſomething elſe.

Alſo, *God made them*, ſaith the Text. See then the folly of thoſe who make them gods, and vainly do adore them. For let it be obſerved, that although the ſunne and moon be called the greateſt lights, yet if they be worſhipped, they are abuſed to the greateſt darkneſſe: and they that deifie them, may damnifie themſelves by being as blinde as the heathen Gentiles, and as ſuperſtitiouſly addicted as ſome (of old) amongſt the Jews; whoſe anſwer to the Prophet Jeremie was, that they would not do according to his teaching, but follow rather the deſperate bent of their own bows, in worſhipping the moon as Queen of heaven. *As for the word that thou haſt ſpoken to us in the name of the Lord, we will not hearken unto thee. But we will certainly do whatſoever thing goeth forth out of our own mouth to burn incenſe to the * Queen of heaven, and to poure out drink-offerings unto her, as we have done, we and our fathers, our kings and our princes, in the cities of Judah, and in the ſtreets of Jeruſalem.* Of which they give this reaſon: *For then* (ſay they) *we had plentie of victuals, and were well, and ſaw no evil*, Jer.44. 16,17. By which laſt words it well appeareth, that it was fear, as much as any thing elſe, which made them thus advance this practiſe. And truely fear is an effect proceeding from the nature of ſuperſtition, and ſo farre prevailing, that it will there make gods, where it doubteth moſt of danger: as the Egyptians did, in making fortune a goddeſſe. For they kept an annuall feaſt in honour of her deitie; giving thanks for the yeare which was paſt, and earneſtly imploring her favour for the yeare to come. It was *Plutarchs* obſervation, that the ſuperſtitious alwayes think the gods ready

*The moon, as in Job, chap.31.26.

readie to do hurt. By means whereof he accounteth them in worſe caſe then malefactours or fugitives, who if they once recover the Altar, are there ſecured from fear, where nevertheleſſe the ſuperſtitious are in greateſt thraldome: And from hence aroſe that ancient ſaying, *Primus in orbe deos fecit timor:* And hence it alſo was that the heathen, in inſtitution of their ſacrifices, did offer as well to all their gods that they ſhould not hurt them, as for any help they expected from them. An example whereof we have again among the poore ſilly Indians, who ſacrifice their children unto the devil at this very day, becauſe they be mainly afraid of him. And of old (as it is ſtoried) we have the example of *Alexander Magnus*, who ſacrificed to the ſunne, moon, and earth, that thereby he might divert the evil luck, which (as he feared) was portended by an Eclipſe but a little before. And the Jews did not onely burn incenſe to the Queen of heaven, but offer up cakes unto her alſo, as in Jer. 7. 18. From which kinde of idolatrie Job did thus acquit himſelf, ſaying, *If I have beheld the ſunne when it ſhined, or the moon when it walked in brightneſſe: or if my heart hath ſecretly enticed my mouth to kiſſe my hand unto it, or by way of worſhipping it: then this were iniquitie that ought to be puniſhed*, chap. 31. verſe 26. It ought indeed to be puniſhed, becauſe God Almightie had forbidden it; as in Deut. 4. 19. *Beware leſt thou lift up thine eyes to heaven, and when thou ſeeſt the ſunne, and the moon, and the ſtarres, even all the hoſt of heaven, ſhouldeſt be driven to worſhip and ſerve them, which the* LORD *thy God hath divided unto all nations under the whole heaven.* And in Jerem. chap. 10. verſ. 2. *Learn not the way of the heathen, and be not diſmaid at the ſignes of heaven: for the heathen are diſmaid at them*: Which is, as if it ſhould be ſaid, The way of the heathen is to worſhip their gods with a ſervile fear, and attribute divine ho-

nour to the creature. But you which are my people, do not you ſo: for God willeth not that the works of his hands ſhould be worſhipped. Or thus, He there teacheth them to have their truſt ſo firmly fixed on him, that what diſaſter ſoever the heavens in the courſe of nature ſhould threaten unto them, they ought not to fear it. For, *Aſtra regunt homines, ſed Deus aſtra regit.*

And again, Moſes in the text calls the ſunne and moon two great lights: the greateſt of which (even the ſunne it ſelf) ſeemeth to our eyes but little, and yet by rules of art is found * farre greater then the earth; that thereby we may learn not to truſt our ſenſes too much in heavenly things.

* Greater then any ſtarre; and bigger then the earth 140 times, according to *Tycho*.

Laſt of all, let me prevent a queſtion. The moon is leſſe then any ſtarre: For *Tycho* makes Mercury but 19 times leſſe then the earth; whereas the moon is leſſe by 42 times: how then can the moon be called a great light, ſeeing her bodie is no bigger? Take this * anſwer; The ſunne and moon are called great lights, partly from their nature & effects; becauſe they give more light then other ſtarres. The ſunne appeareth alone in the day, not becauſe he is alone, but becauſe through his exceeding brightneſſe the other ſtarres cannot be ſeen. The moon alſo in her brightneſſe obſcureth many ſtarres; and being more beautifull then any other, hath worthily the chief preheminence in ruling the night, as the Scripture ſpeaketh. Or thus, They be called great lights (ſay ſome) according to the cuſtome of the Scripture, ſpeaking according to the capacitie of the ſimple: for in outward appearance they are the greateſt. And yet as great as the greateſt is, if one ſhould go about to perſwade the vulgar that the earth is of a farre leſſe circuit, they would ſcarce beleeve it; making the ſunne of the bigneſſe of ſome wheel, and the moon as much in compaſſe as the breadth of a buſhel: howbeit * S. *Ambroſe* gives ſenſible

* Or this; *Dicuntur duo luminaria magna, non tam quantitate quàm efficaciâ & virtute. Quia etſi aliæ ſtellæ ſunt majores quantitate, quàm luna; tamen effectus lunæ magis ſentitur in iſtis inferioribus, & etiam ſecundum ſenſum major apparet.* Aquin. ex Chryſ. Hom. 6.

* In his Hexamer.

ſenſible and apparent reaſons of greatneſſe in the ſunne and moon, even by daily experience. For firſt, they appeare of like quantitie to all the world, whereas herds of cattel being eſpied farre off ſeem as ants, and a ſhip diſcerned farre in the ſeas, ſeemeth no bigger then a flying dove. They ſhew of the ſame greatneſſe in *India*, & in *England*. They enlighten all parts of the earth alike, and appeare the ſame indifferently to all; and therefore muſt needs be of an extraordinarie bigneſſe. And ſecondly, as ſoon as the ſunne ariſeth, all the ſtarres are hid; which ſhews his greatneſſe. And further, if the ſunne were not of ſuch greatneſſe as Artiſts give unto it, how could all the world be enlightned by it?

Sect. 2.

Of the Matter, Place, and Motion of the Starres; with other like things which are alſo pertinent.

Artic. 1.

That they conſiſt moſt of a fierie matter, and are cheriſhed by the waters above the heavens.

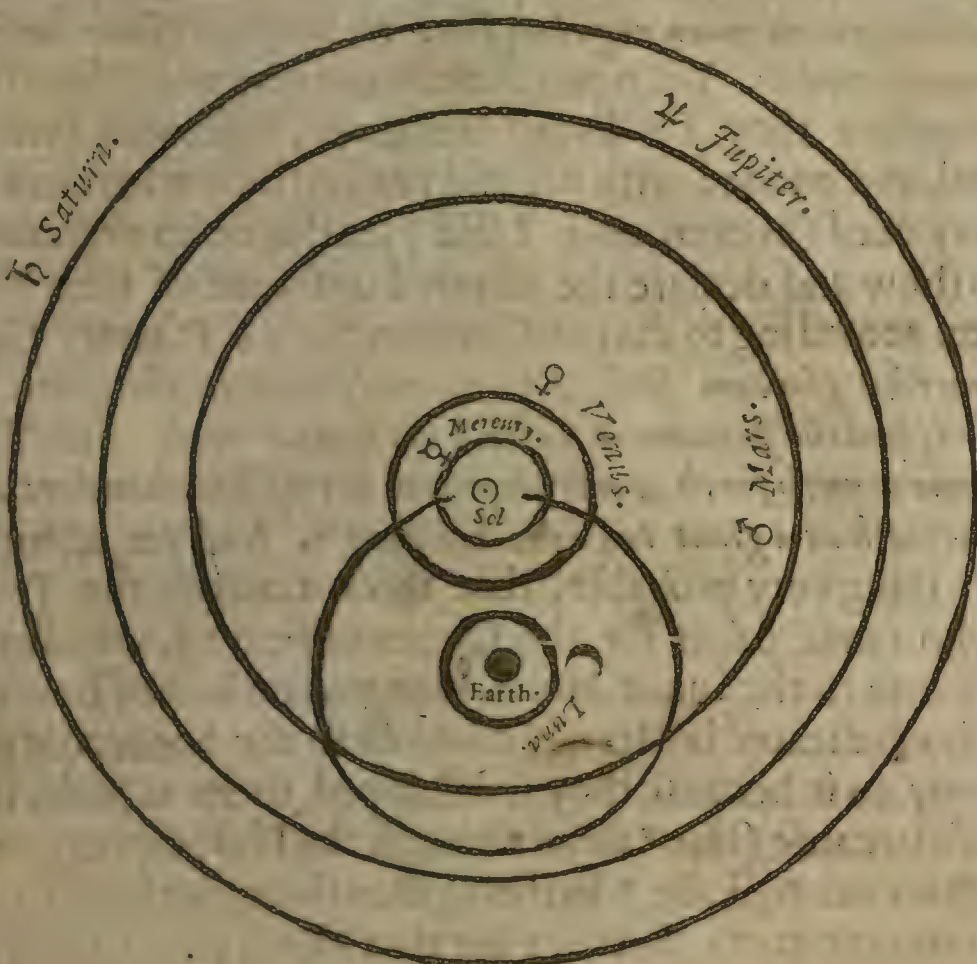
BY *Heaven* and *Earth*, which Moſes ſaith were created in the beginning, we are to underſtand all and every part of the whole Univerſe: whoſe matter was created at once, and made as it were the ſtorehouſe for all things elſe; as alreadie in the firſt dayes work I have declared. Howbeit ſome contend, that the ſtarres and lights of heaven were not made out of any matter either of the earth, or the waters, or of heaven, or any thing beſide; but immediately out of nothing. Which certainly is ſcarce agreeable to the whole ſcope of creation: For, in the beginning, the matter of all was made. And perhaps, as it was proper to the

earth to bring forth herbs, graſſe, and trees, at the command of God in the third dayes work; ſo alſo (perhaps) it was as proper to the heavens, in ſome ſort, to afford the matter of the luminaries and other ſtarres, as ſoon as God ſaid, *Let there be lights in the firmament of heaven.* And herein thoſe Philoſophers were not much amiſſe, who defined the ſtarres to be the thicker part of their orbs. Yet neverthe leſſe not ſo to be followed, as if the heavens afforded any ſolid orbs; unto which, as the knots in a tree, or the nails in a wheel, or the gemme in a ring, the ſtarres are joyned. For beſides that which I have alreadie ſpoken of the whole ſpace within the concavitie of the firmament, viz. that it is but aire; yet purer and purer the higher we climbe: which I proved in the ſecond day, both by opticall demonſtration, height, conſumption, and motion of Comets, with the like; beſides that (I ſay) there be other reaſons alſo to declare it. For not onely certain Poets have confeſſed as much, calling the Skie *Spirabile cœli numen*, as we reade in *Virgil*; or a *Liquid heaven*, as *Ovid* tells us, ſaying, *Et liquidum ſpiſſo ſecrevit ab aëre cœlum:* nor yet is it confirmed by the teſtimonie of *Plinie* alone, who followed herein the opinion of ancient Philoſophers; but even reaſon alſo and exquiſite modern obſervations have made it plain. For ſuppoſe there were ſolid orbs, or that this concave were not filled with liquid aire, would it not follow that there ſhould be as it were *penetratio corporum*, or that one Sphere ſhould cut another in ſunder? Queſtionleſſe it would. For the Planets move ſo up and down that they often enterfeir and cut one anothers orbs, now higher, and then lower; as *Mars* amongſt the reſt, which ſometimes (as * *Kepler* confirms by his own and *Tycho's* accurate obſervations) comes nearer the earth then the Sunne, and is again eftſoons aloft in *Jupiters* ſphere. And doth not *Tycho's*

* *Epit. Aſtron. lib.* 4.

Hypotheſis

Hypotheſis and *Syſtema* of the world make it alſo plain, that the ſphere of the Sunne muſt be interſected by the orbs of *Venus*, *Mars*, and *Mercury*? which could not be if the heavens were impenetrable, or differed *toto genere* from this ſoft aire wherein we live and move. And now ſee this figure, framed according to *Tycho's* demonſtration.



Thus *Tycho* deſcribeth the wayes and ſituations of the Planets. The ſtarres therefore move in the heavens as birds in the aire, or fiſhes in the ſea, and the like: yet ſo, as their bounds are ſet; which with great regularitie, to the admiration of their Maker, they conſtantly come unto, & depart away from, in their appointed times and determined orders; and therefore ſaid to be ſet in the firma-

ment of heaven, verſ. 17. thoſe of the fixed ones being as equally diſtant one from another, now, and at this very day, as at the firſt, when God Almightie made them: and thoſe of the wandring ones as conſtant in their courſes, as ever yet from the firſt time they began to move. Whereupon ſaith *Tycho*, *Semper judicavi naturalem motûs ſcientiam, ſingulis Planetis congenitam, vel potiùs à Deo inditam eſſe, quâ in liquidiſſimo & tenuiſſimo æthere curſûs ſui normam regulariſſimè & conſtantiſſimè obſervare coguntur.* Yet neverthleſſe we may not think that therefore they are living creatures, animated with a ſoul, and endued with life and reaſon; but rather, and in very deed (as even now I ſaid) let this be an argument to ſhew and declare the admired wiſdome of their Maker: according to that of David in the 19 Pſalme, *Cœli enarrant gloriam Dei, The heavens declare the glorie of God, and the firmament ſheweth his handie work.* For, *The ſunne cometh forth as a bridegroom out of his chamber, and rejoyceth as a giant to runne his courſe.* And yet again it is a thing very probable, that thoſe amongſt the Jews who made cakes for the Queen of heaven, who burnt incenſe to the Sunne, Moon, Planets, and hoſt of heaven, who dedicated horſes and chariots to the Sunne, did not onely do it becauſe they worſhipped them as gods, but alſo becauſe (like * ſome amongſt the Philoſophers, and others amongſt the * Fathers) they thought them to be living creatures. Sure we are that Moſes puts them not into his catalogue amongſt ſuch creatures as he reckoneth to have life: and therefore who will ſay they live?

Tych. in Epiſt. ad Rothmannum.

* *Plato in Timæo*, with other his followers. See alſo *Cic. de natur. Deor. lib.2.*

* *Origen* and his followers.

They may move, and yet be inanimate; as fire, which is of power to move, waſte and conſume: aire incloſed is able to ſhake the earth: water carrieth ſhips, boats, and barges; flows this way, and that way, yet is no living creature, hath no ſoul, minde, or reaſon.

Alſo, it may be granted that they are daily nouriſhed

by

by vapourie humours, and are (as it were) fed by ſuch kinde of food; yet no living creatures. For no man will denie a tranſmutation of the elements, but rather eaſily grant that they one nouriſh another for conſervation of the Univerſe: And in ſuch a kinde, or not farre differing, it is that the ſtars may be nouriſhed by watrie humours, and have their beams made wholeſome to the world, although they be no living creatures. All which may be ſeen more largely proved in *Lydiats Prælectio Aſtronomica*: where having diſcourſed of the matter of the heavens and ſtarres, as alſo of the portions and tranſmutation of the elements, he proveth that there is ſuch a penurie of water here below, that it cannot be ſupplied (*ad mundi, non dicit æternitatem, ſed diuturnitatem, propter inæquales elementorum tranſmutationes*) not ſupplied without the conſumption of the aire, were not the waters divided. The one part whereof is *circa mundi medium*; from whence may be had in readineſſe alwayes that which is ſufficient to water and fructifie the earth, and leave a place for habitation. The other *circa mundi extremum*, as in a great treaſure and plentifull ſtorehouſe, from whence (*per mediam aëris naturam*) both the ſtarres are cheriſhed, their beams made wholeſome to the world, and alſo the expenſe of theſe lower waters ſalved in what is needfull: for the earth, as a bad debter, either ſends back none, or little of that which it borrowed, not being eaſily turned into any other element. From whence (ſaith he) we may anſwer that queſtion amongſt the ancient Ethnick Philoſophers, mentioned by *Plutarch*, πόθεν τρέφηται ὁ κόσμος, *Unde nutriatur mundus*. *cap. 4. & cap. 5.*

And indeed for mine own part I alſo think, that the ſtarres are of ſuch a nature or ſubſtance, that (in their kinde) they ſtand in need of daily ſuſtentation, like a lamp which can burn no longer then the oyl laſteth

which ever feeds it. For the heavens are ſubject to change and alteration; neither is there any neceſſitie compelling us to attribute a quinteſſence to either of them (eſpecially ſeeing we are certain that the world is not eternall) but that we may as well and as probably grant them to be of the ſame nature with the elements; as formerly I have related. Which being granted, I ſuppoſe them to be chiefly of a fierie nature: and this (perhaps) they took from the * higheſt part of the aire, in the ſupream height of heaven, which reacheth to the utmoſt extent of the out-ſpread firmament: For there is that which we call the Elementarie fire; there, I ſay, and not in a lower place: although *Ariſtotle* would have it *in concavo lunæ*, or next under the orb of the moon; of which ſee more in the ſecond dayes work.

* Or, *A luce primæva*, which was made in the firſt day: in which ſee more.

And herein I do willingly alſo embrace the opinion of *Plato*, that the ſtarres for the moſt part are fierie: yet ſo, as they in ſome ſort participate alſo of the other elements; that thereby their bodies may be (as it were) glewed together, and firmly concreted into a durable lump: differing no otherwiſe from a Comet then ice doth from cryſtall, or a cleare ſolid gemme from bright brittle glaſſe. An experiment whereof we have in that new ſtarre of *Caſſiopea's* chair; which, becauſe it was of a more ſolid compoſition then ordinarie comets, and of a nearer nature to the matter of the continuing ſtarres, did therefore appeare like one of them, & laſted a long while with them before it was extinguiſhed: for had it not been exalted to a great perfection and ſolid compoſition of the parts, it had been gone, extinct, and vaniſhed, a long while ſooner. And in granting to them ſomething of every element (although their greateſt portion, eſpecially in the ſunne, be fierie) it comes to paſſe that they have differing qualities: of which ſee more afterwards in the Aſtrologicall part of this dayes work. Neither

ſhall

ſhall I need to ſtand upon it as a thing neceſſary for me to prove, whether they make warm the aire and us by any heat which is formally in them, or by the attrition made with their beams. Onely know, that it is hotter in ſummer then in winter, becauſe when the beams of the ſunne come neareſt to a perpendicular trajection, their heat is the greater, becauſe their reflexion is the ſtronger.

But leaving this, give me leave to proceed, and to proſecute more fully the matter in hand, that thereby I may ſhew my meaning now more clearely concerning the daily nouriſhment of theſe bright heavenly lamps. For (as hath been ſaid) ſeeing their chiefeſt matter is of that nature of which it appeareth to be, they muſt of neceſſitie be nouriſhed out of ſome ſtore-houſe or other; otherwiſe the world comes to decay, *& impavidum ferient ruinæ*, and the very ruines will ſtrike him who fears it not. For ſatisfaction therefore in this, it cannot be amiſſe to remember the opinion amongſt ſundry of the ancient Philoſophers, who ſaid the truth, and yet erred in declaring it: as *Cleanthes*, who allowed the matter of the ſunne to be fierie, and that it was nouriſhed by humours attracted from the ocean. Alſo *Anaximander* and *Diogenes*, after whom *Epicurus*, and the Stoicks, thought in like manner, that the ſunne was nouriſhed by waters: and leſt it ſhould periſh through any defect of aliment, they fondly ſuppoſed that the oblique motion which it had from one Tropick to another, was to finde out moiſt humours, that thereby it might live perpetually. Now theſe things very worthily were held by *Ariſtotle* to be ridiculous and abſurd; as in the ſecond book of his Meteors, at the ſecond chapter, is apparent. Yet nevertheleſſe ſucceeding times did in a manner pitch ſtill upon the ſame tenents, and would not onely have the ſunne and reſt of the Planets, but even all the other ſtarres nouriſhed by vapours and watrie humours, as

well as they. For amongſt others, it was *Cicero's* opinion in his ſecond book *De natura deorum* ; making the ſea, and waters of the earth, their daily ſtore-houſe. See alſo *Seneca* in his 6 book and 16 chapter of Naturall queſtions; and *Plutarch in libello de Iſide*; and *Plinie* in his Naturall hiſtorie, *lib* 2. *cap*. 9. whoſe words are theſe, *Sydera verò haud dubiè humore terreno paſci, &c.* Theſe indeed ſpake the truth, but (as I ſaid before) they erred in declaring it. For it is nothing probable, neither may it be granted, that all the ſeas, or waters in the world, are able to afford moiſture enough for ſuch a purpoſe.

Du Bart.

And therefore ſmile I at thoſe fable-forgers,
Whoſe buſie-idle ſtyle ſo ſtiffly urges
The heav'ns bright Saphires to be living creatures
Ranging for food, and hungry fodder-eaters;
Still ſucking up (in their eternall motion)
The earth for meat, and for their drink the ocean.
Nor can I ſee how th'earth and ſea ſhould feed
So many ſtarres, whoſe greatneſſe doth exceed
So many times (if ſtarre-divines ſay troth)
The greatneſſe of the earth and ocean both:
For here our cattell in a moneth will eat
Sev'n times the bulk of their own bulk in meat.

Wherefore be pleaſed to call to minde what was formerly mentioned in the ſecond day, concerning the waters above the heavens, ſet apart from theſe below by the out-ſpread Firmament: but how it is that there they are, and that the out-ſpread Firmament is able to uphold them, let the alledged reaſons in the foreſaid day be again remembred. And then obſerve, that theſe waters were certainly ſeparated for ſome purpoſe: for *Deus & Natura nihil faciunt fruſtra*; *God and Nature make nothing in vain. He made all things in number, weight, and meaſure,** ſaith Solomon; ſo that there is nothing which was not made for ſomething. I do therefore conſent

* Wiſd. 11. 22.

again

again to thoſe who † ſuppoſe that theſe waters do daily nouriſh and cheriſh the ſtarres; thereby alſo ſo tempering and ordering their beams, that they may remain wholeſome to the world; turning alſo and attenuating thoſe drops, with which they are cheriſhed, into thin aire: and ſo doing, nature is kept from periſhing before her time.

† *Lydiat. Prælect. Aſtron. & lib. de Orig. Font. cap. 10.*

Neither let it ſeem ſtrange although the ſtarres be granted to conſiſt moſt of a * fierie temper, that therefore they cannot be cheriſhed by watrie humours: for it is certain that fires are endued with ſundry qualities or forces, according to the divers mixtion of matter, or divers diſpoſition of the ſubject. From whence it comes to paſſe that a bituminous flame is not quenched, but nouriſhed in water; and the fire of lightning is ſaid to burn the fiercer when we ſtrive to quench it. Theſe waters therefore, ſweating (in the likeneſſe of thin vapours) through the utmoſt extent, or roof of the outſpread Firmament (which was made ſtrong by ſtretching out, and by which they are upholden) do both ſupplie that decay of aire which otherwiſe would be, and alſo do ſo temper and cheriſh the diuturnitie of the ſtarres, that thereby they ſhall continue untill the end of the world. *Elementorum tranſmutationes* (ſaith * one) *ſunt inæquales, ergò & proportiones; ac majores quidem eorum, quæ faciliùs tranſmutentur in alia: & hoc ex neceſſitate, non dico ad mundi æternitatem, ſed diuturnitatem. Aqua autem multò magis mutatur in terram, quàm terra in ipſam: & aër hoc aquæ damnum, ſine maximo ſui diſpendio, reſarcire nullo modo poteſt niſi ab aquis ſupercœleſtibus.* And (perhaps) the daily waſting of theſe waters may be the cauſe that the world is perceived to have a ſucceſſive declination, and to grow old as doth a garment; untill at the laſt, age (for want of matter to keep an harmonious tranſmutation in the conſervation of it) ſhall (ac-

* *Igneæ ſunt, ſive à luce primæva factæ: & ſic, lux eſt eſſentia ſtellarum. Ignis enim non aliud quàm calor denſatus, ſive lux compacta. Patric.*

* *Idem.*

cording to the determined purpoſe of Almighty God) ſuffer it to end, as being worn out, and little able to continue any longer. Which, when it ſhall be, or how he intendeth to ſhorten it, reſts onely in the ſecret counſel of the holy Trinitie: the divine word neverthele ſſe teſtifying, that (as tokens before it) *there ſhall be ſignes in the ſunne and the moon, in the heavens and ſtarres. For the ſtarres ſhall fall from heaven, and the powers of heaven ſhall be ſhaken. Cadent de cœlo ſtellæ* (ſaith * one) *non ratione ſubſtantiæ, ſed lucis; quia lumen ſuum retrahent, & obſcurè reddent.* Which ſaying agrees directly to my meaning, when I ſpeak of the waters waſting. For as the elements before, from time to time, have ſuffered a tranſmutation, and ſhall now begin to devoure one another: ſo the ſtarres ſhall fade, and (perhaps) be weakened in their qualities; by having the leſſe powerfull elementarie part in them turned by the more powerfull; or if not ſo, yet much altered by that ſenſible decay in the waters above the heavens.

Matth. 24. 29. Mark 13. 25. Luke 21. 26.

* Gerard. loc. Tom. 9. pag. 231.

And thus, though I differ from *Ariſtotle* and the Peripateticks, yet I have not much declined from the paths of other ancient Philoſophers, or from the ſteps of *Plato*: in which, how farre (in my judgement) we may follow the Academicall ſect, the Stoicks, and thoſe of *Epicurus*, hath been related. Howbeit I leave all free to the more judicious; though for mine own part I think thus of the worlds *Syſtema*. Let therefore thoſe of the adverſe part pitch their cenſure with the more favour: and ſo I proceed to the following articles.

Artic. 2.

Of their order and place in the skie: and how it comes to paſſe that one ſtarre is higher then another.

HAving already ſhewed that the whole concave of the heavens is filled with no firmer matter then ſoft and

and penetrable aire, and that the ſtarres have no ſolid orbs to uphold and move them, it may not unfitly be queſtioned how they ſhould hang in ſuch a weak yeelding place, and yet (according to their times) keep ſuch ſeverall certain diſtances one from another, as we ſee they do.

To which, perhaps, ſome would anſwer, that every ſtarre, in reſpect of his either more or leſſe fiery qualitie, doth either more or leſſe aſcend from the centre;and ſo, according to his gravitie or levitie, reſt naturally higher or lower as in his proper place: the aire having a like power in the upholding of fiery bodies, which the water hath in carrying of airie bodies. For as a piece of *Braſill*, or *Lignum vitæ*, will ſink lower into the water then ſome lighter kinde of wood wherein there is more aire: In like manner that ſtarre which hath moſt of his matter from the more groſſe elements, takes his place in the loweſt room; whereas the lighter ones are naturally ſeated higher. And indeed this is an anſwer which would ſerve the turn and bear out the matter well enough, if there were no ſtarres but thoſe which we call the fixed ſtarres; for they are never obſerved to be higher or lower, but alwayes of one and the ſame diſtance from the centre. But ſeeing there be Planets likewiſe whoſe diſtances are unconſtant, and whoſe places are at ſome one time farre more abſent from the earth then at ſome other; nay, Mars is ſometimes nearer then the ſunne: ſeeing it is ſo (I ſay) their gravitie or levitie cannot abſolutely be the cauſe: but rather ought this to be referred to that infuſed force which his hand firſt gave them who placed them there. For as the Sea being ſtirred by the moon to a loftie flux, and having lifted up his rolling waves above the neighbouring banks, would in all probability overflow the earth, if the Almightie had not infuſed it with ſome oc-

cult qualitie, ſaying, Hitherto ſhalt thou come, and no further; as we reade in Job: So likewiſe the ſtarres would not keep their high and low places at certain infallible times ſo as they do, and be ſo orderly in their motions as they are, were it not from the power firſt put into them when they were placed in the firmament: of which I ſpake but a little before, when I ſhewed they were no living creatures. For concluſion therefore, I like well of the former reaſon if it be referred to the fixed ſtarres; but as concerning the Planets, we ſee that it holdeth not in all and every part, nor yet is abſolutely found ſufficient. And yet for further ſatisfaction of the curious, let it be ſuppoſed that the aire is ever thinneſt in that place whereunto the ſunne is neareſt: ſo that though the Planets naturally have but one place, yet accidentally they may be found either higher or lower, according to their approaching to or from the place of the ſunne; like as may be ſeen in one and the ſame weight, if it be proved how unequally it will ſink in divers waters, and in waters of a differing thickneſſe. Of which reade more in Mr *Lydiat* his *Prælectio Aſtronomica*, in the fourth and eighth chapters. But in the mean time, & ever after, admire the wiſdome of thy Maker, and praiſe his holy name: For *he hath ſo done his marvellous works, that they ought to be had in perpetuall remembrance.*

O never let theſe works forgotten be:
Their art is more then humane eyes can ſee.

Sect.

Sect. 3.

Of the offices given to the Sunne, Moon, and Starres, in the day of their creation.

Paragr. 1.

Shewing that their firſt office is to ſhine upon the earth, to rule over the day and night, &c.

Artic. 1.

Of light, what it is: and whether the Sunne be the onely fountain of light.

THe former part of my diſcourſe hitherto in this dayes work, was chiefly founded upon theſe words, *Let there be lights in the firmament of heaven*; and upon theſe, *And God made the ſtarres alſo*. But now I come to ſpeak of their offices: The firſt whereof is that exquiſite one above the reſt; I mean their bright and radiant ſhining, by which the diſmall clouds of foggie darkneſſe are daintily devoured, and the ſweet comelineſſe of the worlds ornament made apparent. For without light all things would appeare like the face of hell or horrour, and each parcell of the worlds fabrick lie buried in black obſcuritie, & diſmall ſqualour. Whereupon one ſpeaketh worthily, ſaying, that amongſt thoſe * qualities ſubject to ſenſe, there is none more fit to ſhew the due *decorum* and comely beauty of the worlds brave ſtructure, none more fit then light. For where it ſpreads it ſelf (either above us, or below us) all things are then encompaſt with ſuch a ſplendour, as if a golden garment were dilated over them, or curiouſly put upon them. Let it not then be aſhamed to ſhine & ſhew it ſelf to the praiſe of him who made it; For, *Praiſe him ſun and moon: praiſe him oh ye ſtars and light*, was Davids ſong. But to proceed.

* But how it is a qualitie, ſee afterwards.

Authours make a difference between *Lux* and *Lumen*. It

It is called *Lux* as it is in the fountain, that is, in a bodie which is lucid of it ſelf; as in the ſunne: ſo ſaith *Zanchius.* But it is *Lumen* as it is in ſome *Medium*, that is, *in corpore diaphano*, as is the aire, or water. *Lumen enim nihil aliud eſt quàm lux, lucíſve imago, in corpore diaphano.* From whence may be gathered, that that primarie light, which we comprehend under the name of *Lux*, is no other thing then the more noble part of that eſſence which is either in the ſunne, moon, or ſtarres: and ſo far as a corporeall ſubſtance may be given to fire, it may be alſo attributed to that which is properly called light; being in and of thoſe lamps of heaven which were made *ex primæva luce* chiefly, and ſo came to appeare of a fiery colour. Whereupon *Patricius*, writing againſt the Peripateticks, ſaith, *Lux eſt eſſentia ſtellarum. Nihil enim aliud flamma quàm lumen denſius; & lumen, non aliud quàm flamma rarior. Calor quoque, non aliud quàm ignis rarefactus atque diffuſus; & ignis, non aliud quàm calor denſatus, ſive lux compacta.* Take therefore my meaning rightly, leſt I be ſuppoſed to be much miſtaken.

And again, concerning *Radius*, which is a Beam or Ray, it is no primarie light neither: but rather (as *Patricius* alſo writeth) it is *Fulgor à Luce exiliens in rectam & acutam figuram, ſeu in modum Pyramidis & Coni promicans.* To which, *Scaliger* is affirming; ſaying, *Lux eſt alia in corpore lucido, ab eo non exiens; & alia à corpore lucis exiens, ut Lumen & Radius.* And *Zabarel* alſo ſaith, *Lux, alia eſt propriè dicta in aſtris ipſis; alia, à luce producta in perſpicuo.* Whereupon I cannot but be perſwaded, that light in it ſelf, properly & primarily taken, muſt be an eſſentiall propertie; as formerly I have related: but to the aire, or other things enlightned by it, it is an * accidentall quality approved of God as good, both to himſelf & the future creatures. For although it be commonly ſaid of compound things, that they are ſuch as we may diſtinguiſh of them

* Obſerve this difference: becauſe light commonly taken is ſaid to be a qualitie.

in ipſam eſſentiam ſuſceptricem, & in eam quæ ipſi accidit qualitatem: yet here the caſe proves otherwiſe; becauſe the ſunne and ſtarres have *ſuſceptam ſemel, ſecúmque immixtam lucem.* And again (as ſaith *Theodoret*) *Lucem quidem condidit ut voluit. Quemadmodum verò firmamento aquæ diviſit, ità lucem illam dividens ut voluit, luminaria magna ac parva in cœlo collocavit.*

And as touching the brightneſſe of the ſtarres, the ſunne may well be called *Oculus mundi, The eye of the world.* For he is indeed the chief fountain from whence the whole world receiveth luſtre; ſhining alone, and enlightning our whole hemiſphere, when all the other ſtarres are hid. From whence ſome Philoſophers and Aſtronomers have been of opinion that the fixed ſtarres ſhine not but with a borrowed light from the ſunne. *Plutarch*, in his 2 book and 17 chap. of the opinions of Philoſophers, ſaith that *Metrodorus*, and his diſciples the Epicures, have been of this minde. But according to the mindes of the beſt authours, and neareſt equipage to truth, the ſtarres are called lights, as well as the ſunne and moon; although there be a difference between them, either of more or leſſe. For Paul diſtinguiſheth between the ſtarres and ſunne, *non privatione lucis, ſed tantùm gradu.* And when God ſaid, *Let there be lights in the firmament of heaven*, he made not the ſunne alone, but the ſunne, moon, and ſtarres: the light in the ſtarres being in very deed darkened by that in the ſunne; which doth but differ in degree from that in them. Whereupon it is that the ſtarres ſhew themſelves by night onely when the ſunne is hid, or in ſome deep pit whither the ſunne-beams cannot pierce. If therefore we cannot ſee them, *Id non ſolis, non ſtellarum culpâ fit, ſed oculorum noſtrorum hic eſt defectus: ob ſolaris enim luminis copiam ac vigorem debilitantur.*

1. Cor. 15. 41.

Alſo, ſome adde their influences; as that of the *Little*

 dogge,

dogge, the *Pleiades*, and others,being plain teſtimonies of their native light: For if they had not their proper and peculiar light (being ſo farre diſtant from the inferiour bodies) it is thought they could not alter them in ſuch ſort as they ſometimes do: and evermore the further they be from the ſunne, the better and brighter we ſee them.

And as for the diverſitie of their influence, the differing qualitie of the ſubject cauſeth this diverſitie. So that though this light, for the firſt three dayes, was but one in qualitie, it came to have divers effects as ſoon as it was taken and beſtowed upon the ſtarres and lights. And (perhaps) as there is in them the more of this fire, the hotter is their qualitie: but little fire, and more water, the moiſter and cooler; and ſo alſo, the more earthy ſubſtance, the darker.

The ☾ Neither do I think that we may altogether exempt the moon from her native light. For although ſhe ſhineth to us with a borrowed light, yet it is no conſequence to ſay, ſhe hath therefore no own proper light. There is (ſaith *Goclenius*) a double light of the moon; Proper, and Strange. The Proper is that which is Homogeneall to it ſelf, or *lux congenita*, a light begotten together with the moon, and eſſentiall to it, although it be but weak. The other is that which it borroweth from the ſunne; as is ſeen in eclipſes & monethly revolutions: For ſhe is one while full, another while hid; one while horned, another while half lightened; which is but in reſpect of us, who cannot ſee what light ſhe borroweth, but as ſhe approacheth from the ſunne: for otherwiſe ſhe is half lightened alwayes. Or (if you pleaſe) conſider it thus, that as a well poliſhed Mirrour tranſporteth the light of the fire, or the ſunne, againſt a wall or a floore; ſo the moon receiveth her light from the ſunne, and reflecteth it in the night upon the earth: for the

ſunne, being then abſent, gives an abundant and free leave to ſee it. And again, as in a Mirrour, which hath behinde it his foil of lead ſcratched and torn, a man may perceive certain ſpots; So in the moon, becauſe her bodie is in ſome places rare and tranſparent, and in other places maſſie, thick, and ſolid, there appeare certain *Maculæ* or blemiſhes: for thoſe places and parts are not of a fit temper to reflect the light of the ſunne. The *Maculæ lunæ.*

But if it be ſo in the moon, why may not the other ſtarres ſhine likewiſe with a borrowed light as well as ſhe?

I anſwer, Becauſe we have not the like reaſons to declare it. Neither is it like (ſaith *Patricius*) that that unmeaſurable companie of fixed ſtarres in the higheſt part of heaven (which is ſo much more noble then the place of the ſunne, by how much it comes nearer to the Heaven of heavens) ſhould ſhine but by the light of the ſunne: For neither in them, nor in any other of the Planets, doth any man ſee a waxing and waning of light; nor yet are they ever eclipſed, but ſhew alwayes of one and the ſame brightneſſe: and therefore it is not the ſame reaſon between the moon and them. Perhaps, if their bodies were compoſed in the ſame manner with the bodie of the moon, or had the like proportions and temperaments that ſhe hath, it might be ſo: but her lowneſſe ſhews her gravitie; and her gravitie her ſoliditie; and her ſoliditie ſhews, not onely her own light to be weak through a want of that fierie matter, or *lux primæva*, which is in the other ſtarres in a differing degree, but alſo her aptneſſe for reflexion is declared to be ſuch, as ſhe may well ſhine by a borrowed light.

Howbeit I do alſo think that the ſtarres have *aliquid lucis alienæ*, which they receive from the ſunne. To which *Patricius* alſo aſſenteth (as he is mentioned by * *Caſman* in the firſt part of his Aſtrologie) ſaying, *Tribuit* * *Cap.* 10. *quæſt.* 7.

buit quidem omnibus, ſed lucere nequaquam facit. Nam & ipſa flammæ ſunt, & ſuâ eſſentiâ lux ſunt, non minùs & ſuis viribus lucere poſſunt, & lucent. Sed lumen ſuum eis ſol addit, lucémque eorum reddit lucidiorem. Lucem ergò eis non indit, ſed inſitam adauget: meaning that the ſunnes light increaſeth the light of the ſtarres, making it the brighter and the clearer: which muſt be underſtood of them, ſo long as they are at a convenient diſtance from the ſunne. For if they be too neare, either the leſſer light is obſcured by the greater (as is ſeen in the Planets, being often hid by the beams of the ſunne) or elſe ſuch a dark ſtarre as *Mercurie*, will with the loſſe of his light ſhew us his dark bodie, which ſometimes happeneth, being then ſeen as a ſpot in the ſunne: For if you take *Mercurie* in his beſt hue, he hath but a cloudie countenance, and a leaden look; which therefore argueth that he hath a thick bodie and little light: of which I ſhall need to ſay no more.

Artic. 2.

Of the twinkling of ſtarres, or vibration of their light.

THe twinkling of the ſtarres is the vibration or trembling of their light. Or rather thus; It is when the light of any ſtarre ſeemeth to tremble. For indeed, to ſpeak properly, the ſtarres themſelves do not twinkle, as we think they do; but either from the trembling of the eye, or motion of the aire, this appearance proceedeth. For when the eye looks long at a ſenſible object whoſe brightneſſe excelleth the ſenſe, it then beginneth to faint, and being weak and wearie, is poſſeſſed with a kinde of trembling; and thereupon we think that the ſtarre it ſelf twinkleth. Alſo the Optick Maſters confeſſe and prove, that the forms of the ſtarres are comprehended

hended of the ſight reflectly, and not rightly: that is, a right line drawn from the eye falleth not into the centre of the ſtarre, but into the form of it reflected and refracted in the aire to the ſight. Now it is manifeſt, that as the aire hath one motion proper to it, which is upwards; ſo hath it another motion improper, cauſed by the revolution of the heavens every 24 houres, which draweth all the airie region about therewith: by which means the apparent form of the ſtarres is diſtracted, ſeeming to caſt forth ſparkles, called twinkling. For if the bodie move wherein the form of the ſtarre appeareth, it muſt be ſo: which we may well prove by a piece of ſilver in the bottome of a ſwift running brook, or by the reflexion of the ſtarres ſeen in the ſame: for by the running of the water the reflected form is diſtracted, and as it were broken: and ſo it is likewiſe in the aire with the ſtarres.

But may not this twinkling be ſeen in the Planets as well as in the other ſtarres? I anſwer, that not alwayes, yet ſometimes it may: and this is but when a watrie vapour is neare unto them, which is carried and toſſed of the windes with a various motion: for then the forms of the Planets alſo being refracted in the ſaid vapour, appeare to the ſight as if they twinkled. Now this is moſt of all perceived in the Eaſt at the time of their riſing: whereupon it comes to paſſe that the common people have ſuppoſed they have ſometimes ſeen the ſunne dance, and as it were hop up and down; which, why ſome have attributed it to ſuch and ſuch dayes, is * fabulous: For this may be upon any day when the ſunne meets with a fit portion of vapours at the time of his riſing; and the other Planets may alſo in ſome ſort ſometimes ſhew it, when they have climbed to an indifferent height above the Horizon: which becauſe it is not ordinarie, ſome have falſely ſuppoſed that the Pla-

A reaſon of the Sunnes dancing.

* See *Scal. Exer.* 63. & *Goclenius Diſput. Phyſ.*

nets twinkle not at all. And again, let this be remembred, that (if there be fit vapours rightly placed) Mars and Venus twinkle more then Saturn, Jupiter, and Mercury: but otherwiſe this appearance is neither in Mars nor Venus, nor any of the reſt.

Parag. 2.

Of that other office which was given to the ſtarres; viz. that they ſhould be for ſignes, &c.

Artic. 1.

That the ſtarres are ſignes of future events; and that by their naturall qualities, they work upon the inferiour world, and all the parts of the ſame.

IF I ſhould expound the words of Moſes ſo nicely as ſome have done, the ſtarres muſt then either ſignifie nothing in the courſe of nature, or elſe be for ſignes onely of ſeaſons (as Spring, Summer, Autumne, Winter) and of dayes and yeares. Which expoſition doth certainly tie up the ſenſe in too ſtrait bands: For it is plain enough that Moſes very poſitively ſetteth down as a diſtinct office by it ſelf, that they were made for ſignes: And then he proceedeth, adding therewithall, *And let them be for ſeaſons, and for dayes, and for yeares.*

In conſideration whereof, the ſentence certainly muſt be divided.

And firſt let us obſerve out of it, that the ſtarres, by a divine ordination, were ſet in the heavens to be for ſignes of future events: wherefore it is ſaid, *Let them be for ſignes.*

Secondly, they were appointed to be (as it were) heavenly *clocks*, and remarkable *meaſures*, by their motions defining and diſcerning Time and the parts thereof, as dayes, weeks, moneths and yeares: And therefore it is alſo added, *And let them be for ſeaſons, and for dayes,*

and for yeares. Of which two offices I purpoſe to diſcourſe a while; beginning with the firſt, as being moſt pertinent to this Paragraph.

And leſt it may be thought that Moſes his meaning is here miſtaken by me, beſides other things that I purpoſe to remember, I would have him compared with the Prophet Jeremie, in the 10 chap. at the 2 verſ. where, when the Prophet commands the people that they ſhould not learn the way of the Heathen, he calleth the ſtarres (like unto Moſes in this very text) *The ſignes of heaven.* From whence [a] *Melancthon* gathereth, that the Prophet doth not onely name them ſignes, but alſo ſheweth that they were ſet to be ſignes of portending ſomething. For, *Non ait Jeremias, nihil eſſe ſigna cœli; ſed, A ſignis nolite timere. Imò cùm nominat ſigna, portendi aliquid affirmat.* And *Luther* alſo affirmeth, in his commentarie upon the words of Moſes, *Simpliciter lunam cum ſole & ſtellis in firmamento cœli Moſes dicit poſitas, ut eſſent ſigna futurorum eventuum, ſicut experientia de Eclipſibus, magnis conjunctionibus, & aliis quibuſdam Meteoris, docet.* Which is, *Moſes plainly ſaith, that the moon, with the ſunne and ſtarres, were placed in the firmament of heaven that they ſhould be for ſignes of future events, as experience teacheth us in Eclipſes, great conjunctions, Meteors, and the like.* To which may be alſo joyned the teſtimonie of learned *Philo,* alledged by S[r] *Chriſtopher Heidon* in his defence of Judiciall Aſtrologie. *This man* (ſaith he) *was familiar with Peter the Apoſtle, and with Mark:* and in divers places, but ſpecially in his book *De Mundi fabricatione,* in his expoſition of that in the 1 of Geneſis, viz. Let them be for signes, he thus ſpeaketh, ſaying, *They were created, not onely that they might fill the world with their light, but alſo that they might be for ſignes of future things. For by their riſing, ſetting, defections, apparitions, occultations, and other differences*

[a] *Præfat. in lib. Schoneri de judiciis nativit.*

ferences of motion, they teach men to conjecture of the event of things: as of plentie and dearth; of the growing up or decay of creatures animate; of cleare weather and ſtorms; of calms and windes; of overflowings and of droughts; of the quiet motion of the ſea, and the boiſterous times of waves; of the anniverſarie changes of times, either when the Summer ſhall be toſſed with tempeſts, or the Winter ſcorched with heat; or when the Spring ſhall be clothed with the nature of Autumne, or Autumne imitate the Spring. Yea (ſaith he) *by theſe ſome have foreſhewed when there ſhould be a ſhaking or trembling of the earth, with infinite other things which have certainly come to paſſe, inſomuch that it may be truely ſaid, The ſtarres were appointed for ſignes and ſeaſons.* Thus farre *Philo*: then which what can be plainer?

The Starres are cauſes as well as ſignes.

Neither are we to take them as bare, naked, and ſimple ſignes onely, but as cauſes alſo of worldly events: which whileſt ſome have denied, what do they but runne mad with reaſon, and plainly oppoſe themſelves to more then common ſenſe? For it is certain that the ſame thing may be both a ſigne and a cauſe: a cauſe, as it worketh to an effect; and a ſigne, as, being preſented to the ſenſe, it leadeth us to the knowledge of the effect: And therefore when the ſtarres are called ſignes, their cauſalitie is not excluded. Howbeit, in ſome things, when they work upon a ſubject not immediately but by accident, they be then occaſions rather then cauſes.

But let me enlarge my ſelf upon this diſcourſe a little more: and becauſe ſome have denied that the ſtarres have any vertue at all, or that we ought to attribute no more power to them then to the ſignes at an Inne-keepers poſt or tradeſmans ſhop, I purpoſe to ſhew the vanitie of that errour as plainly as I can, both by Scripture, and alſo by daily experience.

And firſt for Scripture; Thoſe oracles tell us that great

is

is the force and dominion which the ſtarres have; heaven being the admired inſtrument of the glorious God, whereby he governeth the frame of this corruptible world. For had the heavens and ſtarres no force at all, the Scriptures would never diſtinguiſh between the ſweet influences of the *Pleiades,* and the binding vertues of *Orion:* but the Scripture makes ſuch a diſtinction: therefore the ſtarres have their power. The *minor* is proved out of the book of Job, chap. 38. 31. where the words are theſe, *Canſt thou binde the ſweet influences of Pleiades? or looſe the bands of Orion?* by which ſpeech the Almighty doth not onely ſhew that the ſtarres have their vertues, but alſo declare that their power and vertue is ſuch as no man on earth is able to reſtrain, unlooſe, or binde it: and here S. *Auſtin* alſo teacheth us, that God comprehendeth all the reſt of the ſtarres, by the figure *Synechdoche*, putting the part for the whole; which is an intimation that the reſt have their ſeverall vertues, as well as theſe. For further proof whereof ſee, concerning ſome of the other, in Deuteronomie, chap. 33. 14. *Of Joſeph he ſaid, Bleſſed of the Lord be his land, for the precious things of heaven, for the dew, and for the deep that coucheth beneath, and for the precious things brought forth by the ſunne, and for the precious things put forth by the moon:* where we ſee that the ſunne and moon have power to thruſt forth the fruits of the earth. And again, * *I will heare the heavens, and the heavens ſhall heare the earth:* where ſee laſt of all, that the vegetation of the fruits of the earth dependeth not upon one or two conſtellations, but upon the whole heavens. * Hoſea 2. 21.

Alſo were the ſtarres and lights without power, the Scriptures would never tell us of their dominion over the earth: but the Scripture ſpeaketh of their dominion: therefore they be not deſtitute of power and vertue. The *minor* is proved in Geneſis, chap. 2. 1. and in the ſecond

book of Kings, chap. 17. 16. and chap. 21. 3. and chap. 23. 5. and in Jeremie, chap. 19. 13. and in Zeph. chap. 1. 5. and in the Acts, chap. 7. 42. For in all theſe places the holy Ghoſt calleth the ſtarres, the *hoſt* and *armies of heaven*; thereby amplifying the divine power of God by the force and power of theſe glorious creatures: and this alſo is further confirmed by that in the ſong of Deborah, Judg. 5. 20. where it is expreſſely teſtified that *The ſtarres fought from heaven, the ſtarres in their courſes fought againſt Siſera.* Thus farre Scripture.

And now let experience alſo ſpeak, that thereby they who will not frame their underſtandings to be taught by the one, but will ſeek for ſtrange expoſitions, may be forced to yeeld and acknowledge the truth by compulſion of this other: in the front whereof, I cannot but remember the noble * Poets ſaying,

* *Du Bart.*

Senſeleſſe is he, who (without bluſh) denies
What to ſound ſenſes moſt apparent lies:
And'gainſt experience he that ſpits fallacians,
Is to be hiſt from learned diſputations:
And ſuch is he, that doth affirm the ſtarres
To have no force on theſe inferiours.

1. As for example, when the ſunne ſhifts his habitation, how diverſly are the ſeaſons differing! inſomuch that although the froſtie beard of winter makes us tremble and ſhiver through extremitie of cold, the warm luſtre of the ſummers raies cauſeth us on the contrary to ſweat and as it were pant through heat.

2. Alſo the terrible accidents that ſucceed eclipſes may not be forgotten nor vilipended: for theſe teſtifie that the ſunne, by his heat and light, quickeneth, after an admirable faſhion, all earthly creatures, being as it were the ſourſe and conſerver of vitall heat; and that the moon alſo hath a great power over inferiour bodies. For if it were otherwiſe, ſuch lights coming to be hidden from

from the earth, where there is a continuall revolution of generation and corruption, could not cauſe after their eclipſes the nature of inferiour things to be ſo altered and weakened as they are, both in the elements, and alſo in bodies compoſed of them.

3. And furthermore, who ſeeth not how orderly the tides keep their courſe with the moon? of which I have ſpoken in the third dayes work.

4. Alſo, it is an obſervation that ſeldome faileth, viz. that we have thunder and lightning in the ſummer time at the meeting of Mars with Jupiter, Sol, or Mercurie; and for the moſt part great windes, when Sol and Jupiter, or Jupiter and Mercurie, or Mercurie and Sol, are in conjunction.

5. And again, the increaſe and decreaſe of bodies, or of marrow, bloud, and humours in the bodie, according to the increaſe and decreaſe of the moon, doth ſpeak for that horned queen, and ſignifie that her vertue is not little. For as ſhe fills with light, the marrow abounds in bones, the bloud in veins, the ſap in trees, the meat and moiſture in the oiſter, crab, and creafiſh.

6. Moreover, experience alſo teacheth, that all ſuch wood as is cut for timber, if it be not cut after the full moon, will ſoon be rotten.

7. Alſo thoſe peaſe which are ſown in the increaſe, never leave blooming. And (as ſome report) the pomegranate will bear no fruit any longer then juſt ſo many yeares as the moon was dayes old when it was firſt ſet and planted. The *Heliotropium*, with certain other flowers and plants, we likewiſe ſee that they keep their courſe with the ſunne. And *Plinie* reports in his 37 book at the 10 chapter, that the *Selenite* is a ſtone which hath the image of the moon in it, increaſing and decreaſing according to her courſe in the heavens. And doth not *Cardan* alſo report for certain (as Sir *Chriſtopher Heydon* teſtifieth)

teſtifieth) that *Clement* the 7 had a precious ſtone, in which there was a little ſpot, that according to the ſunnes motion every day riſing and ſetting did turn about, and both appeare and vaniſh in the ſtone?

8. Alſo, Phyſicians finde the daily alteration of ſick ſpirits to be ruled by the moon; and that therefore their obſervation of criticall dayes is no vanitie.

9. And again, experience hath alſo witneſſed that thoſe children which are born in the new moon, or in the time of an Eclipſe, Saturn or Mars in a bad aſpect to the moon, thoſe children (I ſay) do ſeldome live till they be weaned, but die either ſooner or later in the time of their nurſing. To which purpoſe [b] *Joachimus Hellerus* alſo ſpeaketh, ſaying, *Qui prope luminarium Synodos eduntur in lucem, Saturno aut Marte infeliciter lunam reſpiciente, ii naturâ imbecilliores evadunt, ac plerique intra nutritionis annos extinguuntur; quod & ego domeſtico malo filii primùm, deinde filiæ obitu, & alii infinitis exemplis experti ſunt.* And he gives this reaſon of it. *For when* (ſaith he) *the* Humidum radicale *which keeps life and ſoul together, is made weak in thoſe ſmall bodies by reaſon of the thinneſſe of it, then by the combuſtion of the moon, wherein all humours are ſenſibly waſted, it is eaſily conſumed by too much drineſſe: whereupon thoſe bodies thus affected are conſumed for lack of naturall moiſture.*

[b] Ex Mr Hellero. in his *Aſtrologiæ encomia*.

I conclude therefore, that as it is with herbs growing on the ground, ſo with ſtarres moving in the skie; viz. that as herbs have their naturall qualities and operations, ſo the ſtarres likewiſe work on this inferiour world, by their qualities and naturall vertues.

Howbeit this operation is meaſured and ſquared according to the matter whereinto it is received: as for example, we finde that the moon is more operative in moiſt bodies, then in others leſſe participating of ſuch a qualitie: and ſo alſo for the ſunne, the heat of it is moſt where the ſubject is beſt capable of it.

The heavens work alſo upon man.

Come we alſo to man, and on him likewiſe the heavens have their operation, working diſtempers both in bodie and minde, as appeareth Matth. 4. 17. where we ſee, that the people offer the lunatick to be healed of Chriſt. Now this diſeaſe of lunacie, is a diſeaſe whoſe diſtemper followeth the courſe of the moon, as is evident by the judgement of all Phyſicians.

But here I would gladly enlarge my ſelf a little further; and then man muſt be diſtinguiſhed into two natures: the one materiall in reſpect of his bodie; the other ſpirituall in reſpect of his ſoul: And ſee now how the heavens work on him.

1. As for his materiall part, it cannot be exempted from their operations: For it is not onely a truth built upon the teſtimonie of learned Phyſicians and expert Philoſophers, *animantium corpora à lumine planetarum afſici*, that the [c] bodies of living creatures are affected with the light of the ſtarres, and that all of them have a great force in the right ordering or diſordering of their [d] temperaments; but even experience ſeeth how the change of [e] aire changeth us in our bodies, the humours and parts being ſtirred by celeſtiall influence, eſpecially by the moon, according to whoſe changes our bodies daily undergo an alteration.

2. As for the humane ſoul, how farre, or whether not at all it be governed by the ſtarres, is a matter of great conſequence: yet I am confident that we may ſomewhat cleare the doubt by this diſtinction, viz. that the heavens work not immediately upon the ſoul, but mediately by the humours & corporeall organs whereof the ſouls operation dependeth. For the operation of the ſoul whileſt it is in the bodie, dependeth meerly on materiall and corporeall organs: and the elementarie matter whereof theſe organs conſiſt, is ſubject to the operation of the heavens, even as any other elementarie matter: In which regard it

c *Alii poſitus alias affectiones imprimunt; vel concitatis ſcilicet turbatiſve humoribus, vel ſedatis ac perpurgatis, vel ſerenatis ac colluſtratis ſpiritibus, vel excitatis ac roboratis principum membrorum facultatibus. Goclen. Diſp. Phyſ.*

d *Craſes humanorum membrorum ſive corporum, etſi multa ſumunt à materia ſeu à ſemine; tamen certum eſt, eas valde temperari poteſtate ſyderum, & ab corundem poſitu variari & gubernari. Idem ex Pucero.*

e *Nec vero dubium eſt, ut ſolis & lunæ, ita cæterorum planetarum lumen variare tempeſtates, & aërem, & corpora noſtra afficere. Marſt. ex Milichii Orat. de Aſtrol.*

it may be affirmed that the heavens in ſome ſort do work upon mens mindes and diſpoſitions. And hereupon it comes to paſſe that Mars doth ſometimes ſow the ſeeds of warre by his working upon aduſt choler, and the like. Or the aire being greatly out of tune, cauſeth not onely many ſickneſſes, but ſtrange diſorders of the minde; and they breaking out into act, do many times diſturb ſtates, tranſlate kingdomes, work unluckie diſaſters and the like: of which I ſpake before in the * ſecond dayes work.

*Chap.5. Sect.2. Parag.4. Artic.1.

And now know that if the operation of the heavens in this, be but ſo farre forth as the ſoul depends upon the bodily inſtruments, all that is done to the ſoul is but an inclination: for there can be no compulſion where the cauſe is ſo remote. And therefore let it be obſerved that it is one thing to cauſe, another thing to occaſion; or one thing to inferre a neceſſitie, another thing to give an inclination: The former we cannot averre to be in the power of the ſtarres, foraſmuch as mans will, which is the commandreſſe of his actions, is abſolutely free from any compulſion, and not at all ſubject to any naturall neceſſitie or externall coaction. Howbeit we cannot deny a certain inclination, becauſe the ſoul of man is too much † indulgent to the body, by whoſe motion (as one worthily obſerveth) it is rather perſwaded then commanded. There is therefore no Chaldean fate to be feared, nor any neceſſitie to be impoſed upon the wills of men; but onely an inclination: and this inclination is not cauſed by an immediate working of the ſtarres on the intellectuall part or minde of man, but occaſioned rather, mediately, or ſo farre forth as the ſoul depends on the temperaments and materiall organs of the bodie. In which regard I hope never to be afraid of the ſignes of heaven, neither is there cauſe why I ſhould ever curſe my ſtarres, ſeeing

† How our mindes do ſympathiſe with the body, ſee in the 2 day, Chap.5. Sect.2. Parag.4. Artic. 1. *prope finem.*

I know in this the utmoſt of their power. And as it was ſaid to that Apoſtle, *My grace is ſufficient for thee*;ſo may every one take it for granted, that there is a ſecond birth which overſwayes the firſt. To which purpoſe one makes this an obſervation,

Juſtè age——Sapiens dominabitur aſtris;
Et manibus ſummi ſtant elementa Dei.
Do godly deeds, ſo ſhalt thou rule the ſtarres:
For then God holds the elements from warres.

Or, as another not unfitly alſo ſpeaketh,

Qui ſapit, ille animum fortunæ præparat omni,
Prævisúmque poteſt arte levare malum.
The wiſe, for ev'ry chance doth fit his minde,
And by his art makes coming evils kinde.

And in a word, that pithie † ſaying of *Joannes de Indagine* ſhall cloſe this Article, *Quæris à me quantum in nobis operantur aſtra?* dico, &c. *Doſt thou demand of me how farre the ſtarres work upon us? I ſay, they do but incline, and that ſo gently, that if we will be ruled by reaſon, they have no power over us; but if we follow our own nature and be led by ſenſe, they do as much in us as in brute beaſts, and we are no better.* For, agunt, non cogunt, *is all that may be ſaid.*

† Chiron. lib. 5.

Artic. 2.

Whether it be not a derogation from the perfection of things created, to grant that the ſtarres have any kinde of power over the actions of men.

As for the power which the ſtarres can have in this kinde, I have, in the end of the former Article, alreadie declared. Howbeit, that I may leave as few ſcruples behinde me as I can, my purpoſe is to cleare this queſtion a little more. For it hath been the ſerious perſwaſion of not a few, that (according to the tenent of *Baſil*, in his *Hexameron*, and ſome others) the diſpoſitions of men may not

not be imputed any whit to the ſtarres, without wrong either to God or them. If (ſay they) vicious inclinations or evil actions be ſtirred up by the ſtarres, then God ſhould be the cauſe of humane outrages, wickedneſſe, and the like. Or again, if the moderation of our actions dependeth upon the ſtars, then many abſurdities would follow. For firſt, thoſe ſtarres whoſe aſpect is ſaid to be evil, ſhould either of themſelves be created evil by their maker; or elſe it muſt be that in reſpect of their own wills they made themſelves evil afterwards: neither of which may be affirmed. Not the firſt, becauſe every thing that God made was very good, Gen. 1. Not the ſecond, becauſe ſeeing the ſtars are inanimate & creatures without life and ſoul, it were wickedneſſe to attribute a will unto them.

Hyperius Method. Theol. lib. 2.

To all which objections and doubts it may be thus anſwered, viz. that the ſtarres are no malicious agents, voluntarily ſtriving to do miſchief to the world; but rather ſuch as do harmleſly ſend down their naturall influences and powers into the univerſe: and had it been that man had not fallen, their inclinations in him had been no inclinations, nor their power in occaſioning felt any jot at all: The evil proceeds from the nature of man, who loſt his puritie and ſtrength of will, in yeelding to that which was forbidden: it comes not from the ſtarres, but from our ſelves. And ſo [a] *Melancthon* doth in effect anſwer to that of *Baſil*, ſaying, that we ought in this to conſider what excellencie of condition our humane nature hath loſt; and thereby obſerve how grievous and evil ſinne is, by which our temperatures are become brutiſh; and not raſhly condemne, or without conſideration go throw the ſtarres out of heaven. For in this preſent ſtate of things (*Nè nunc quidem ſtellas ſcelerum cauſas eſſe*, they be his own words) we ſay not, that the ſtarres are cauſes of our ſinne; in regard, that though our inclinations

a *Præfat. in lib. Joh. Schon. de judiciis Nativ.*

riſe

riſe from them, yet they are not ſole or chief cauſes of our actions, but our will is the principall cauſe thereof, which was firſt created in perfect libertie, by which it both had power to withſtand, even as ſtill it ought to refrain all inordinate inclinations. *Non enim fatalem neceſſitatem conſtituimus, nec cogi Neronem à ſtellis, &c.* For we do not conſtitute fatall neceſſitie, nor affirm that Nero was compelled by the ſtarres unto his ſo great and monſtrous ſinnes: but yeelding to his luſts he willingly entertained thoſe rages, which the devil more and more inſtigated, and ſo became worſe then his nature (though bad enough) had made him. Hitherto *Melancthon* to that of *Baſil.* Wherefore when we fall into a due conſideration of theſe things, and finde that it was the fall of our firſt parents which hath induced this diſproportion between our natures and the influences of the ſtarres, we ſhall ſoon ſee where the fault reſteth, namely in our ſelves. For (as that worthy [b] Knight obſerveth) we muſt conſider, that the impreſſion or operation of every agent is alwayes anſwerable, not to the power of it ſelf, but to the capacitie and aptneſſe of the patient: according to which rule, the ſtarres produce their effects, even as the ſubject or matter is, in which their influence doth work. Which is but as I ſaid before, viz. that if man had not fallen, their inclinations in him had been no inclinations, nor their power in occaſioning felt any jot at all. For as the fire hurteth ſore eyes, but warmeth cold hands; ſo the ſtarres are *formaliter bona*, although *effective* (according to the unapt qualitie of the ſubject) they produce a ſad effect. Or, to uſe again the words of the ſaid authour, as we ſee the wine, which is healthfull and comfortable to ſome, how quickly it hurteth the conſtitution of another who hath but a weak brain; ſo the ſunne doth ſoften and melt wax, but ſtiffen and make clay hard: yet no man for

[b] Sir Chriſtopher Heydon.

Xx this

this affirmeth either the wine to be drunk, or the ſunne to be formally ſoft, or hard. Wherefore (ſaith he) by this I may boldly conclude, that although it be confeſſed, that the ſtarres are efficient cauſes of our inclinations; yet there is no conſequence to conclude them ſuch themſelves as the effects are that they produce: for where the fault reſteth, hath been declared. Furthermore, he alſo proveth againſt thoſe who ſay the ſtarres are tainted in being cauſes by accident, or occaſions many times of ill, he proveth (I ſay) that every occaſion to ſinne is not to be accounted a provocation to ſinne, or to be held unlawfull: for if this were admitted, we muſt alſo pollute God himſelf with ſinne, becauſe he hath made fair women, and ſweet wine, by means whereof many men fall; yet nevertheleſſe none will denie them to be good: for they have their lawfull uſe and right end. Wherefore he doth here alſo excellently conclude, that as no man will ſay, that the Phyſician or his medicines do ſinne, though, when they reſtore a ſpent and diſeaſed bodie, accidentally they procure luſt: no more are the ſtarres to be accounted bad or to ſinne, though in conſtituting the temperature of our bodies, they may be truely confeſſed cauſes by accident, or occaſions of ſinne. The queſtion is therefore reſolved, that it is no derogation from the perfection of things created although we grant the ſtarres to have a kinde of power over the actions of men: which power, both how and what it is, hath been declared.

Artic. 3.

Of predictions, or whether the ſignes of heaven may be underſtood or ſearcht into.

THey be Davids words, that *The works of the Lord are great, and ſought out of thoſe who have pleaſure therein.* And Moſes here, in teſtifying that God created the

the ſtarres for ſignes, doth likewiſe ſhew that they may be underſtood; otherwiſe to us they were no ſignes at all. Neither do I doubt, but that even Moſes himſelf, and Daniel likewiſe, who were * brought up, the one in the learning of the Egyptians, the other in the skill of the Caldeans, did underſtand the ſignification of theſe ſignes. And from whence was it that thoſe nations had their knowledge, but from Noah and Abraham; if *Joſephus* or *Beroſus* may be credited? For concerning Noah, do not thoſe authours ſtorie, that ſoon after the floud he taught the Armenians and Scythians the ſecrets of theſe things? Whereupon they ſaid, that he participated of a divine ſpirit. So alſo Abraham, that Father of many nations, did equally inſtruct the Caldeans and Egyptians: although indeed afterwards it was their bold adventure to mix magick, and ſuperſtitious vain inventions, with this their lawfull skill.

* Act. 7. 22. Dan. 1. 17.

The natures of the ſtarres may be known.

And for us, experience hath travelled in the manifeſtation of the ſeverall qualities belonging to the lamps of heaven. For as we know the fire to be hot, the water moiſt, this herb to be cold, that to be drie: ſo alſo by obſervation, it doth manifeſtly appeare that the ſunne gives heat and cheriſheth, the moon moiſteneth, Mars drieth; and ſo of the reſt. Or thus, ♄ Saturn is cold and drie, ſtirres up and increaſeth melancholy. ♃ Jupiter is temperately hot and moiſt, works moſt upon ſanguine complexions, ſtirring up and increaſing that humour. ♂ Mars, through his heat and immoderate drineſſe, ſtirres up and increaſeth choler; and ſo, often proves an accidentall cauſe of brawlings, fightings, warres, and the like, beſide ſuch ſickneſſes as may come by the ſuperabundancie of that humour. ☉ Sol is moderately hot and drie, greatly cheriſhing all kinde of creatures. ♀ Venus is cold and moiſt, but it is in a temperate manner; and as for her operation it is ſeen moſt in flegmatick complexi-

ons. ☿ Mercurie is ſaid to be drie in reſpect of his own nature, but joyned to any of the other Planets, he puts upon him their natures, and works as they work. Then followeth ☾ the Moon, and ſhe is well known to be the miſtris of moiſture. Neither can you truely ſay that it is impoſſible to finde their natures to be either thus or thus: for it is but 30 yeares that the longeſt of theſe did ever ſpend in his periodicall revolution: and but 72 yeares (as *Tycho* teacheth) can runne about whileſt the fixed ſtarres alter one degree in their longitude. Inſomuch that Saturn (whoſe period is but 30 yeares) cometh twice to the ſame point of heaven before the eighth ſphere is moved one degree: and Jupiter (whoſe revolution is 12 yeares) cometh 6 times to the ſame place: and Mars (who accompliſheth his period in little leſſe then 2 yeares) meets 36 times with the ſame ſtarres in the ſame place: and as for the Sunne, Venus, Mercurie, and the Moon, their meetings with them be oftner. Alſo it is certain that the great conjunction of Jupiter and Saturn, is once every 20 yeares; and Mars and Saturn viſit each other in leſſe then every two yeares: by means whereof it is no hard thing, or as a thing impoſſible, to finde out the ſimple natures either of the Planets or fixed ſtarres.

And from theſe natures thus known, and their mixtures, and places obſerved, it is that the effect is foreſeen and the judgement given: which, if it be modeſtly, carefully, deeply, and deliberately done, by one well verſed or converſant in theſe things, doth for the moſt part happen as is foretold: for the moſt part, I ſay, and not alwayes. For as the Phyſician knoweth that the ſame portion of either ſingle or mixed ſimples, will not work upon all bodies alike; ſo neither can the like portion and power of qualities ſtirre up, or work alwayes *ad idem*, but may ſometimes receive either intention or remiſſion, ac-

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cording to the indiſpoſed aptneſſe of the ſubject, the elements or elementary bodies not alwayes admitting of their powers alike; or when they be overſwayed by more potent and prevailing operations. For univerſall and particular cauſes do many times differ, and then the one hinders the operation of the other. As for example, particular cauſes (as the conjunction of Venus and the Moon, or ſome ſuch like meeting) may promiſe rain, ſnow, or ſleet, when univerſall cauſes (which are not ſo eaſily ſeen) do often turn it into more fair and warm weather. And ſo alſo particular influences may ſeem to work upon ſuch or ſuch humours, and thereupon make the bodie ſubject to this or that ſickneſſe, and the minde enclined to this or that kinde of action, with many ſuch other like things: howbeit it may ſo happen that nature may be at this time ſo abſtruſely ſhut up, that what we ſee not may overpower and work beyond what we ſee.

A man had need therefore have *Argus* his eyes to pierce throughly into theſe cauſes, and examine without raſhneſſe either what may help or what may hinder; otherwiſe his judgement may fail him even in things wrought by the courſe of nature (for of other things he ought not to judge.) And indeed when there is a divers mixture of qualities, all in a manner of equall portions (as it may ſometimes be) how hard a thing is it then to finde out (without a ſound judgement) the true event! for there be many difficulties proceeding from the weakneſſe of our judgements. And for that again which I ſaid before of natures abſtruſe kinde of working, although I be no Stoick to tie Gods mightie hand to ſecond cauſes, yet I verily ſuppoſe that all things are not beyond the courſe of nature which ſeem to be extraordinarie; but even many ſtrange-ſeeming things are wrought by the power of nature: as ſometimes in un-

wonted ſtorms, tempeſts, droughts, ſtrange appearances, or other like accidents. And this again I alſo think, that one man may ſee the cauſe when another cannot: whereupon it comes to paſſe that there is ſuch diverſitie of judgements and thwarting of opinions many times about one and the ſame thing. Alſo I might adde ſomething (which one or other will be readie to object) concerning the devils permiſſion in raiſing unwonted windes, ſtorms, and ſuch like. Or I might ſpeak, not onely of Gods power, but of his providence likewiſe in diſpoſing his creatures to manifeſt their operation rather in one place then in another; which is an act proceeding from his ſecret purpoſe and divine wiſdome: as when the clouds (according to his decree) do disburden themſelves of their wearie drops rather here then there, or there then here: For, ſaith he in the 4 chap. of Amos, at the 7 verſ. *I have cauſed it to rain upon one citie, and it hath not rained upon another, and the citie where it hath not rained was barren.* But I ſhall not need to meddle further: For (notwithſtanding theſe difficulties) it is manifeſt enough that the ſignes of heaven may be both ſought into, and alſo in ſome ample meaſure underſtood.

For it is true that God Almightie having both ſet and foreſeen the courſe of nature long before, doth now uphold it by his providence, inſtrumentally to perform his will. Neither every day doth he make the windows of heaven to ſtand open, or the fountains of the great deep to be broken up; nor yet doth he every day make the ſunne or moon to ſtand ſtill, or the ſhadow to go back, or an Eclipſe to be at a quite contrarie time, or the moon again to ariſe before her uſuall courſe: but hath undoubtedly left his works to be *ſought out of all thoſe who take pleaſure therein*; and, according to that portion of ſound judgement which he hath given to

every one, they may underſtand either more or leſſe of theſe ſignes: For as one ſtarre differeth from another in luſtre and beautie; ſo one mans knowledge and better judgement tranſcends not ſeldome above the reſt. Neither can the devil every day have it in his commiſſion to go and blow down houſes upon the heads of Jobs children. Nay (ſaith one) if theſe ſignifications are not to be conſidered, why are they ſo divinely written and painted in the heavens? Surely it were impietie altogether to pluck or draw away our mindes from the obſervation of theſe things. For if the heavens (as they do) declare the glorie of God, or the firmament ſhew forth his handie work, we may well beleeve that they expreſſe what God effecteth by them: for otherwiſe every thing which God created, doth declare his handie work as well as they. Eclipſes, conjunctions, prodigious ſights, flaſhings, comets, new ſtarres, what are they but the Oracles of God? by which, changes, alterations, and ſundrie calamities are threatned to the world: And theſe, if any one contemne them, what doth he but deſpiſe the admonitions of God? Alſo, how much theſe obſervations have profited the Commonwealth, let *Thales* teach us: For they that have *Thales* his skill, may by theſe ſignes judge of cheapneſſe and plentie, of dearth and deerneſſe, with other like things whoſe knowledge cannot but be profitable to the life of man.

Onely beware that more be not attributed to the heavens, then to him that made the heavens; not more to the ſervants then to the Maſter, as they did who made them gods; or they who truſt and rely upon them, not daring to take a journey, or begin a work, or ſpeak with a friend about any buſineſſe, without a needleſſe conſultation.

The ſignes of heaven muſt not be abuſed.

Alſo know that the obſerving of theſe ſignes muſt not be mixed with magicall ſpells, as charmers do, when in

ſtead

ſtead of uſing, they come to abuſing of herbs: For as the herbs on the ground were not made to be abuſed in ſuch damned and forbidden practiſes ; no more were the ſtarres in the skie. Neither ought the obſerving of theſe ſignes to be mixed with charactericall practiſes, diabolicall or ſuperſtitious divinations, making of images under ſuch or ſuch a conſtellation, dangerous elections of times, either to procure good or bring down ill from heaven, as they did who blaſphemouſly maintained, that men are long-lived and their ſouls go to heaven when Saturn is in Leo: or they, who have not quaked to affirm, that when the Moon is joyned with Jupiter in the head of the Dragon, whatſoever a man then asketh at the hands of God, he ſhall receive. Neither ought we to flie unto them for finding of things loſt: for where you cannot argue from the cauſe to the effect, their uſe is unlawfull. Nor may we uſe them in the contingencie of things when the cauſe is unknown or indeterminate. Nor were they made to decide horarie queſtions, or ſortilegious demands. Nor yet may we erect figures, thereby to anſwer to certain queſtions : as to know whether a man ſhall have the thing he hopeth or looketh for; to know what ſhall become of a mans ſecret enemies; to know of the ſpeedie or ſlack return of him that taketh in hand any journey, and of ſuch things as ſhall happen in the journey; or to know, by the eighth houſe, whether a man ſhall enjoy the goods and dowrie of his wife; or by the ſeventh, whether a man ſhall obtain that woman in marriage which he deſireth; or by the ſixth, to know whether a man ſhall keep or leave his ſervant; with other the like queſtions, of which can be given or known no cauſe, why the ſtarres ſhould ever be thought to effect them: inſomuch that it is a kinde of wonder to think how it ſhould come to paſſe, that ever any one could forge out ſuch inquiries to be anſwered from the

ſignes

ſignes of heaven. For the ſtarres were not made to *juſti*-fie the dangerous practiſes of wicked impoſtours, nor to give anſwer to the cauſeleſſe curioſities of ſuperſtitious demanders; but made to be both ſignes and cauſes of ſuch things as already I have mentioned: for when the ſtate of the queſtion is come beyond the courſe of the foure principall qualities of cold, heat, moiſture, and drineſſe, it will finde ſuccour neither in ſound philoſo-phie, nor in the holy Word of written veritie.

Laſt of all, let this one thing be remembred, that the conſtellations (as is well known, and apparently per-ceived of Aſtronomers) by reaſon of a ſlow motion which the fixed ſtarres hath, ſliding from the equinocti-all point about one degree in 72 yeares, are now remo-ved into other ſignes of the divided Zodiack, cauſing thoſe ſignes, by the qualitie of the ſtarres which are now in them, to be of another nature: as Aries which was hot and drie in the dayes of *Ptolomie*, is (by reaſon that the ſtarres of Piſces are moved thither) cold and moiſt: and Taurus which was cold and drie, is now of the na-ture of the ſtarres of Aries, that is, hot and drie: and ſo of all the reſidue of the fixed ſtarres, they are removed into new houſes, or other manſions. Which if it be not pro-portionably conſidered, let any mean capacitie judge how groſſe an errour may heedleſſely be produced by an unskilfull artiſt.

Parag. 3.

Of that other office given to the ſtarres; viz. that they were appointed to be heavenly clocks, and remarkable meaſurers of time and the parts thereof.

This office is laid down in theſe words, *And let them be for ſeaſons, and for dayes, and yeares.*

Artic. 1.

Of Seaſons.

IF we take ſeaſons, dayes, and yeares together, it is no hard thing to ſee how the whole and parts are joyned. For *Tempus* is the whole: and *Annus* is *pars temporis:* and *Dies* is *pars anni.* Not that theſe are the onely parts of time; but becauſe the other do chiefly conſiſt of theſe. Howbeit; ſeeing they be laid down ſeverally, it is fit they be explained ſunderly. And firſt of Seaſons.

We need not with the Jews underſtand here their feaſts onely, and anniverſarie dayes of ſolemnitie; for then this diſtinction of ſeaſons had not been in uſe till after the coming out of Egypt: neither is it enough to applie them to the monethly revolution of the moon, or to the ſunnes changing into a new ſigne or partition of the Zodiack. But by the name of *Seaſons,* we ought rather to be led unto thoſe *Quatuor anni Cardines*, or foure Quarters of the yeare, when the reviving ſunne croſſeth the Equinoctiall, and again toucheth upon either ſolſtice: which laſt, is (as it were) *ſolis ſtatio,* becauſe the dayes ſeem to ſtand at a ſtay: and the two other have their names from equall day and night, becauſe the dayes and nights are then of equall length, *Sol* cheerfully riding in his gold-like fierie chariot, juſt in the middeſt between the Artick and Antartick Poles. For theſe were thoſe ſeaſons which God again eſtabliſhed for ever, when he renewed

renewed that face upon the decayed world, which by the impartiall Floud was blemiſhed: ſaying, (as it is in Gen. chap 8. 22.) *While the earth remaineth, ſeed-time and harveſt, and cold and heat, and ſummer and winter ſhall not ceaſe.*

And as for us, we commonly call theſe times by the names of *Spring*, *Summer*, *Autumne*, and *Winter*.

Spring.

The Spring is a time never unwelcome, nor unwiſhed: for the weather begins then to appeare like a pitifull and truely kinde-hearted cheriſher; and *Sol* aſcending, diſperſeth the ſuperfluous humours, ſtirreth up the bloud in our bodies, and ſap in herbs and trees; clothing the earth with ſweet new liveries, and plants with boughs and beauteous branches: nay the harmleſſe choriſters of the rebounding woods and echoing groves, do then begin to tune again their ſugred throats, and raviſh revived mortalls with their melodious aires; bidding good morning to the day, and morrow to the morn. For no ſooner can *Aurora* wake, and peep above the purple verges of the Eaſtern hills, but cheerfully they chaunt her out a mirthfull cantilene: whileſt in the mean time, ſweet-breathing *Zephyrus* playes with the wanton treſſes of his late dead, and decayed, but now again revived miſtris; and in comely hue doth beauteous *Flora* prank her ſelf, cheerfully coming forth to meet her kinde ſweet-cauſing lover. The prettie lambes are now at play, whileſt the watchfull ſhepherd ſits piping on an hill to pleaſe that queen of his heart, his deareſt ſhepherdeſſe, whom ruthfully he moveth to grant his ſuit, and pitie his complaint.

Ver præbet flores, ſaith the Poet; and from † *vireſco* it may well be ſaid to take the name. For will you heare?

> *The mealie mountains which were late unſeen,*
> *Change now their coats, all into luſtie green.*

† Or thus, à virendo, quia tunc omnia virent & floreant, &c.

The gardens prank them with their flowrie buds;
The meads with graſſe, with leaves the naked woods.
Sweet Zephyrus begins to buſſe his Flora;
Swift-winged ſingers to ſalute Aurora;
And wanton Cupid, through this univerſe,
With pleaſing wounds, each creatures heart'gins pierce.
,, Yea Titans preſence doth again revive
,, As well things ſenſible as vegetive.

Partly out of Du Bart.

Summer.

But next after Spring we reckon Summer; which may well be called the mother of plentie and daughter of bountie. For the earth hath now her lap full of every kinde of grain, her belly is bigge and ready to be delivered, that ſhe might thereby enrich the weary labourer, and feed each hungry ſoul. *Formoſa eſt meſſibus Æſtas*, ſaith *Ovid*: Summers beautie conſiſteth in his fruitfull fields of corn.

——— *For now he crowns his Ceres*
With gilded eares, as yellow as her hair is;
Till th'reaper, panting both for heat and pain,
With crooked raſor crops the tufted plain.

In Latine we call it *Æſtas*; which is, becauſe this ſeaſon derives the name *ab æſtu*, from the exceeding heat: and ſo alſo doth the Engliſh word *Summer* expreſſe it. For *Summer* is a word taken out of the Germane language; and in the Germane tongue it is ſaid to be *Sunne-mehr*, that is, *plus ſolis*, or *more ſunne* then at other times.

Autumne

And now come to Autumne (for Autumne is the next Quarter) and this is a ſeaſon which bringeth that to perfection, which the Spring and Summer hath but begun. For now the barns are full, the preſſes and fats overflow with an abundance of wine and oyl, and men do now eat the late gathered labours of their hands, and joy in the ſurpaſſing plentie that the earth hath brought them. This time is indeed the yeares very barbour; or (if you will) it is like unto a kinde-hearted prodigall, who

who by little and little gives all away ſo freely, that in concluſion there is nothing left him. He takes his name therefore from *Autumno*, which ſignifieth *to make ripe*; for as faſt as he can ſee the fruits ripened or brought to perfection, he yeelds them up to others. Or elſe it is *Autumne, à bonorum anni augmentatione*; as ſome ſuppoſe.

Th'earth by degrees her lovely beautie bates,
Fills others full with her deare delicates:
The apron and the oſier-basket (both)
Catch dainty fruits to pleaſe each daintie tooth:
Untill at laſt trees, gardens, meads and all,
Are naked ſtript and robbed quite of all.

And here in this Quarter was undoubtedly the beginning of the firſt yeare: For that it ſhould be ſo, we have grounds both in reaſon, Scripture, and other writings; as in the ſecond chapter of this book I have proved at large.

But leaving Autumne, look now at Winter: it is a ſeaſon which can boaſt of little. For it lies entrenched with gloomie miſts of night, and weeps almoſt as often as it wants the ſunne, or findes it hid within the compaſſe of a cloſe cloud. Nay ſee but with what a palſie pace it cometh. He that of late was ſweating in the fields, caſting off his clothes, & fainting through heat, is now glad to call for more and thicker garments, and not aſhamed by the help of fire to mitigate the freezing cold. For Winter is like unto an old man with a gray head and white beard; inſomuch that when hoarie-headed *Hyems* doth but bruſh or ſhake his hairs, the trees and herbs, (as I may ſo ſay) in ſtead of leaves, are periwigd with ſnow: Or if he doth but let his churliſh breath blow out upon us, the waters are turned ſoon into a cryſtall cruſt, and without wonder men are ſeen to walk upon it, *Winter.*

Et celſis dependet ſtiria tectis; yea and the drops hang frozen then at the eaves of houſes.

That therefore of *Ovid* muſt needs be true, *Igne levatur Hyems*. To which let that † *Bacchi maſſicus humor* be alſo added: For theſe two will now do wondrous well; according to that of the noble Poet,

† A cup of good wine.

All lusks in ſloth ; and till this quarters end,
Bacchus, and Vulcan both, muſt us befriend.

This ſeaſon is called by the Latines *Hyems*, which ſeemeth to be derived from the Greek word* ὕω, ſignifying to make moiſt or wet: And in Hebrew (as ſome affirm) it is called *Choreph*, coming of the root *Charaph*, which ſignifieth to reproach or diſgrace; becauſe when winter cometh, the earth is as it were diſgraced and expoſed to reproach, in being ſpoiled of all its pleaſant greenneſſe, beauty and ſplendour.

* Which in Latine is *Pluo*.

And in a word to ſhut up all, thus you may remember theſe ſeaſons, together with their ſundry qualities;

Poma dat Autumnus: Formoſa eſt meſſibus Æſtas:
Ver præbet Flores: Igne levatur Hyems. Ovid.

Autumne gives fruit: And corn makes Summer fair:
Spring ſhews us gayes: Fire helps cold Winters aire.

Artic. 2.
Of Dayes.

A Day is either artificiall or naturall.

1. The artificiall is from ſunne-riſing to ſunne-ſetting, agreeable to the words of our *Saviour, when he demanded if there were not twelve houres in the day.

* Joh. 11. 9.

Now this kinde of day is not alwayes equall, but varies according to the ſunnes unequall time of riſing and ſetting: and thereupon the houres likewiſe are to be reckoned according to the dayes proportionable difference; being (even as the dayes) longer in Summer then in Winter.

Alſo for this artificiall day, *Joannes de ſacro Boſco* divides it into foure quarters; calling the firſt *rubens*, the ſecond *ſplendens*, the third *urens*, and the fourth *tepens*.

2. And as for that which is a day naturall, it evermore containeth the juſt number of 24 equall houres; in which ſpace of time the ſunne is carried by the motion of the *Primum Mobile* from any one part of heaven untill it comes to the ſame point again.

This kinde of day amongſt divers nations hath divers beginnings.

Midnight.

England, the 17 Provinces, ſome part of Germanie, the Myſians, and the Romanes, account from midnight untill midnight; becauſe at that time (as is ſuppoſed) our Lord was born: and from hence, as *Verſtegan* thinketh, came the word *Seanight*, being a week of dayes and nights, or a *Sennight*.

Sun-riſing.

† Which in them or all within the Parentheſis, though it be here inſerted, is meant of the artificiall day.

The Babylonians, Perſians, Norimbergians, &c. begin at ſunne-riſing, (and ſo do our †lawyers in England, ending again at ſunne-ſetting: for he who hath a ſumme of money to pay on a ſet day by bond, neither before nor after ſunne need tender his money:) Theſe, I ſay, begin at one ſunne-riſing, accounting untill the next; according to that of **Plinie, Babylonii* (ſaith he) *inter duos ſolis exortus.*

* *Lib. 2. cap. 77.*

Noon.

And as for the Umbrians, Arabians, and Aſtronomers, they reckon from noon untill noon again.

Evening.

But the Athenians, Jews, Sileſians, Italians, Bohemians, &c. account alwayes from the evening or ſetting of the ſun; beginning their day when the night approacheth and the ſunne departeth, being as it were gone to his bed or weſtern reſt.

1. They who begin from midnight may ſeem to have this warrant, viz. that the ſunne is then again returning towards our Hemiſphere; and (as I ſaid before) midnight is that time when the ſunne of righteouſneſſe aroſe to the world. For it is ſuppoſed that Chriſt† was born about the

†Which is but an uncertain ſuppoſition.

the middle of the night, whileſt the ſhepherds were keeping watch over their flocks. The day therefore beginneth from midnight.

2. Again, they who account from the time of ſunne-riſing have this plea, ſaying that the day is fitly to take beginning, when the cauſe thereof, viz. the ſunne, doth firſt appeare and ſhew himſelf to the inhabitants of the world, calling them out unto their daily labours, and ſummoning them by his beauteous light to ariſe, and leave their ſleepie beds. Therefore when the ſunne ariſeth, the day beginneth.

3. Alſo, they who reckon from noon, ſuppoſe that they ought to account from that time when the ſunne is in the moſt*eminent place of heaven, and hath the greateſt number of eyes enlightned by it. And as for Aſtronomicall calculations, this alſo is the fitteſt time, becauſe it falleth alwayes at one and the ſame certaintie. The day therefore beginneth from noon.

* Which they ſuppoſe to be the place it was firſt ſet in when it was made.

The naturall beginning of the day is from ſunſetting. Gen. 1.

4. Laſt of all, they who begin from the ſetting of the ſunne have the trueſt and ſtrongeſt plea. For this beginning is agreeable to the whole progreſſe of the worlds creation, and beſt fitteth the divine inſtitution of naturall dayes; being in very deed a true νυχθήμερον of night and day, as of right it ought to be. For darkneſſe was before the diurnall light: and *God* (ſaith the Apoſtle) *commanded that light ſhould ſhine out of darkneſſe.* And ſo the evening, as well as the morning, was pertinent to one and the ſame day; of which ſee more in the firſt dayes work.

Artic. 3.

Of Yeares.

A Yeare, being the chief and moſt uſuall part of time, whereby the ages of men, of the world, and other things are principally meaſured, is the periodicall revolu-

tion

tion of the ſunne through *Mazzaroth*, or the twelve ſignes of the Zodiack, Job 38. 32. For by the ſunnes unceſſant motion, a ſet number of dayes are as it were wheeled about to terminate one yeare, and to give each ſeaſon his due period of time. And in a true meaſured yeare, there is not alwayes a ſet or certain equalitie: For there is either the great, or the leſſer quantitie. In the greateſt quantitie a yeare hath 365 dayes, 5 houres, 56 minutes, and 53 ſeconds; And in the leaſt quantitie, 365 dayes, 5 houres, 44 minutes, and 38 ſeconds.

But if we reckon according to the courſe of the moon, then a yeare is that ſpace of time wherein the moon, after ſome conjunctions with the ſunne, is again in conjunction with him, not farre from that place where ſhe firſt met him. Or if we reckon by the other ſtarres, it is then that ſpace of time which the ſunne ſpendeth after his departure from any ſtarre, untill he returneth to the ſaid ſtarre again.

And in all theſe, the ſunne hath the chiefeſt preheminence, is the only guide, and moſt remarkable meaſurer. Whereupon I may not omit what I finde obſerved by Expoſitours, *viz.* that a yeare hath the name in Hebrew from *Shanah*, ſignifying a *changing* or *iteration:* which is in regard of the ſunnes returning, after a yeares end, to the ſame point of heaven where it began. And as for the circuit of the moon, which we commonly tearm a moneth, it is derived from another word ſignifying *to renew*; becauſe in that ſpace the moon is again renewed: neither is it found in any place of Scripture, that theſe names are perverted, or the one of them taken to ſignifie the other; but by the one (ſay they) is meant a yeare, and by the other a moneth. See *Gib.* on Gen. chap. 5. queſt. 2. and *Ainſworth* on Gen. 1. 14.

In Latine the yeare is called *Annus*, becauſe we may

ſay of it, *revolvitur ut annulus*. For as in a ring the parts touch one another, circularly joyning each to other; ſo alſo the yeare rolleth it ſelf back again by the ſame ſteps that it ever went; whereupon it came to paſſe that the Egyptians, amongſt other their hieroglyphicks, uſed to paint out the yeare like a ſnake winding her ſelf as round as a ring, holding her tail in her mouth: *Et ſic ſua per veſtigia volvitur annus*. The name likewiſe ἐνιαυτὸς, which it hath from the Greek, is agreeable to the foreſaid derivation. And all this concerning naturall yeares.

But as for Politicall yeares, they be thoſe which are diverſly uſed by divers nations in their accounting of times: and they differ in lengths according as the computatours fail in skill to regulate them to the motion of the heavens.

That which we now uſe is the Julian yeare, inſtituted by *Julius Ceſar*, who, by the help of *Soſigines* an Egyptian, an expert Mathematician, amended the old Romane yeare, and brought it to that form in which we now have it, making it to conſiſt of 365 dayes, and 6 houres: which 6 houres are not reckoned every yeare, but once every fourth yeare, being then increaſed to the juſt length of a day, which is alwayes inſerted or put in the next before the 6 Calends of March, cauſing the ſaid Calends to be twice repeated: from whence that yeare is called *Biſſextile* of *bis* and *ſex*, *twice ſix*; or *Leap-yeare*, becauſe by this adding of a day, from thenceforth the fixed holydayes and the like, do as it were skip or leap one day further into the week then they were the former yeare.

Now the mean length of the Tropicall yeare being defined to have no more then 365 dayes, 5 houres, and 49 minutes, ſheweth that this Julian

yeare

yeare is ſomewhat greater then it ſhould be, exceeding the exacteſt meaſure which can be had, by the quantitie of eleven minutes or there abouts; cauſing thereby by little and little to be an apparent anticipation of the Equinoctiall and Solſtitiall points: inſomuch that the Vernall equinox, whoſe place at the firſt Councel of *Nice*, was upon the 21 day of March, is now come to be upon the 10 day of March. The reformation of which errour hath been wiſhed for by divers learned men; and in ſome ſort performed by Pope *Gregorie* the 13 (uſing likewiſe in it the help of *Chriſtopher Clavius*, and ſome others) who in the yeare 1582, brought back the Equinoctiall day to the ſame place it was at the ſaid Nicene Councel, by cutting off 10 dayes in the moneth of October, writing in the Calender next after the fourth day the fifteenth day: by means whereof all their moneths begin ten dayes ſooner then ours, as do alſo all thoſe feaſts whoſe place is fixed and not moveable.

Now in this reformation it was likewiſe ordered, that the yeare ſhould conſiſt of 365 dayes, 5 houres, and 49 minutes. And, that the Equinox might not be ſubject any more to anticipation in 400 yeares, they thought it fit to omit three Leap-yeares; The firſt whereof will fall into the yeare of Chriſt 1715; the ſecond into the yeare 1848; and the third into the yeare 1982, if God ſuffer the frame of the world to ſtand ſo long.

Howbeit in thus doing, although the alteration will be very little, yet the reformation is not exactly true, becauſe there is an inequalitie of anticipation in the Equinoctiall, as the great Maſters in Aſtronomie teach us, being (as they ſay) in ſome ages more, and in ſome leſſe. But ſeeing (as I ſaid) the alteration will be very little, if it ever come to that, it is fit the Leap-year be then omitted.

And thus am I come now to the end likewiſe of this fourth dayes work, wherein, after my plain manner, I have diſcourſed upon every ſuch thing as is pertinent to the work done in it. Let me therefore concluding ſay with Moſes,

The Eve and Morn confine the fourth of dayes,
And God gives to his work deſerved praiſe.

CHAP. VIII.

Concerning the creatures created in the Fifth day of the world: and they were Fiſhes, and Fowls.

Sect. I.

Of Fiſhes, their kindes, properties, &c.

NOw follow the works of the Fifth day: which when I conſider, I cannot but admire the harmonious order which the Almightie obſerveth in the whole progreſſe of his creating. For as yet the world was but like an emptie houſe without inhabitants; a ſtately ſtructure, having no moving creature with life and ſenſe to be living in it; not ſo much as a poore flie, a fiſh, or a bird to taſte the goodneſſe of things created and made. But in this and the next day (the building thus framed, and cheer provided) he brought as it were his gueſts to participate of his delicates, alwayes provided that things inferiour ſhould ſerve things ſuperiour: making his beſt work laſt, namely Man, unto whom the other works were put in ſubordination; to ſhew (me thinks) that the end is the perfection of every thing.

And now ſee, the firſt day was for the matter: The ſecond brought it into a better form, ſtretched out the heavens, and lifted up the waters which are above them. The third did not onely ſhew the face of the earth by the

the gathering together of thoſe waters under heaven, but alſo adorned it with herbs, trees, and plants. The fourth beautifies the vaulted roof of the ſparkling firmament with ſunne, moon, and ſtarres. In the fifth and ſixth he makes all kindes of living creatures; furniſhing firſt of all the waters and aire with their inhabitants; and laſt of all the earth.

And for thoſe many creatures in the waters and aire, their creation was effected in this fifth dayes work; ſo that every kinde of fiſh, and all kinde of birds were now produced. God onely ſaid it, and it was done; as by viewing the text of Moſes will appeare: For in all his works *he ſpake the word and they were made, he commanded and they were created.*

But to proceed. We need divide the whole of this day into no more then two parts: The one of Fiſhes, the other of Birds.

That of fiſhes is the formoſt, and therefore the varietie of thoſe creatures would be firſt admired.

And ſee how Moſes uſhers them. The greater ones are placed in the forefront: For *God* (ſaith he) *made great whales.* And then he proceedeth to adde ſomething concerning the other *ſpecies* of ſmaller creatures living and moving in the water; ſaying, *And every living creature that moveth, which the waters brought forth abundantly after their kinde.*

The Whale

Pareus, and other Expoſitours alſo, by the word which is commonly tranſlated *great whales*, underſtand the biggeſt kinde of ſea-beaſts and monſtrous fiſhes of the largeſt greatneſſe. And indeed the epithet *great*, is not added to the whale without cauſe: For the word * *tannin* ſignifieth a ſerpent, dragon, or a great fiſh: and the whale or great fiſh is the greateſt of all living creatures, as in Job 41. 33. *In the earth there is none like him.* His jaws are likened to doores, verſ. 14. his ſcales

* Dr. Will. on Gen.

ſcales to ſhields, verſ. 15. *Out of his noſtrills goeth ſmoke, as out of a ſeething pot or caldron*, verſ. 20. *he maketh the ſea to boil like a pot*, verſ. 31.

Munſter writeth that neare unto Iſeland there be great whales whoſe bigneſſe equalizeth the hills and mightie mountains, which are ſometimes openly ſeen; and theſe (ſaith he) will drown and overthrow ſhips except they be affrighted with the ſound of trumpets and drummes, or except ſome round and emptie veſſels be caſt unto them, wherewith they may play and ſport them, becauſe they are much delighted with ſuch things. But above all, this he affirmeth to be a good remedie againſt ſuch dangerous whales; to wit, that which the Apothecaries call *Caſtoreum*, tempered with water and caſt into the ſea: for by this as by a poyſon they are utterly driven and baniſhed to the bottome. *Munſt. Coſmog.*

Other authours mention farre greater whales then theſe: And *Olaus Magnus* writeth, that there are many kindes of whales. For ſome he affirmeth to be rough-skinned and briſtled, and theſe contain in length 240 feet, and in breadth 120. others are ſmooth and plain, and theſe are leſſe, being taken in the North and Weſtern ocean. Some again have jaws with long and terrible teeth of 12 or 14 feet in length: and the two dog-teeth are farre longer then the reſt, like unto horns, or the tusks of a boar or elephant. This kinde of whale hath eyes ſo ample and large, that ſometimes 15, 20, or more men may ſit in the compaſſe of one eye: and about either eye there be 250 horns * *ad rigidam vel placidam, anteriorem vel poſteriorem motionem & ventilationem*; ſerving alſo to defend the eyes, either in a tempeſtuous ſeaſon, or when this fiſh is aſſaulted by any other ſea-beaſt. *Phyſeter* or the Whirl-pool-whale hath a large wide mouth, but round: This is a cruel fiſh to the marriners, *Olaus Mag. lib. 21.* * *Idem ibid.*

marriners, and will ſometimes lift up his head above the ſail-yard, caſting up ſo much water through certain pipes in his forehead, that (as the foreſaid authour witneſſeth) great and ſtrong ſhips are either compelled to ſink, or elſe are expoſed to great and manifeſt danger. Sometimes again by laying his head upon either end of the ſhip, he drowns it by his over-loading weight.

Some call the Whirl-pool-whales, *Balænæ*. But howſoever, *Balæna* is reckoned amongſt the whales, and is differing from the *Priſter* or *Phyſeter* which before I called the Whirl-pool-whale. *Olaus Magnus* ſpeaking of the *Balæna*, ſaith that it hath no gills, but certain *Fiſtulæ* are in ſtead thereof, placed in the forepart of the head, and that it is a fiſh which ſhews great love and affection towards her young ones: For when they are little, being faint and weak, ſhe takes them into her mouth to ſecure them from tempeſtuous ſurges; and when the tempeſt is over, ſhe ſpues them again out into the ſea. A fit embleme this, to teach all ſorts of parents either in Church, Commonwealth, or private families, to provide for, and not deſtroy thoſe under them; as alſo to ſecure them from dangers whenſoever they ariſe.

The love of the Balæna towards her young ones.

An inſtruction from the Balæna concerning carefull parents.

When this *Balæna* and her male-whale accompanie together (for they increaſe by copulation) they ſcatter much of their ſeed in the waters, which being found by the marriners is taken and ſold as a pretious drugge. Some call it *Ambra*, or *Ambergreeſe*, affirming that it is good *contra guttas*, and againſt the palſie and reſolution of ſinews, if it be uſed as an oyntment: good alſo to be drunk down againſt the falling ſickneſſe, and ſwounding; having alſo great power of ſtrengthening the inward parts. It is commonly white, and ſometimes counterfeited with the duſt of *Lignum aloes*, and the ſweet gum *Storax*, ſea-moſſe, and the like; but that which is ſophiſticated may be eaſily known, becauſe it will ſoon be

Ambergreeſe comes from the Whale.

The vertues of this Amber.

How to know whether it be without ſophiſtication.

be diſſolved like wax: whereas that which is without ſophiſtication is more ſolid & leſſe eaſie to be made liquid. Thus affirmeth *Olaus magnus:* howbeit others write that Ambergreeſe is the ſpawn of the whale. But *Avicen* is perſwaded that it grows in the ſea: and ſome again onely write, that it is caſt up on the ſhore and found cleaving to ſtones there; the fume whereof is good againſt the falling ſickneſſe, and comfortable to the brain.

How to know whether it be without ſophiſtication.

Munſter writeth that many in Iſeland, of the bones and ribbes of the biggeſt whales, make poſts and ſparres for the building of their houſes: and how great profit proceedeth from the oyl of the whale, no man is ignorant.

* *Plinie* writeth of a little fiſh called *Muſculus*, which is a great friend to the whale: for the whale being big would many times endanger her ſelf between rocks and narrow ſtraits, were it not for this little fiſh, which ſwimmeth as a guide before her. Whereupon *Du Bartas* deſcants thus,

The great whale is beholding to the little *Muſculus*.

* *Lib. 9. cap. 62.* See alſo *Ælian, Hiſt. de animal, lib. 10. cap. 6. Plutarch. de induſt. animalium.*

A little fiſh that ſwimming ſtill before
Directs him ſafe from rock, from ſhelf and ſhore:
Much like a childe that loving leads about
His aged father when his eyes be out;
Still wafting him through ev'ry way ſo right,
That reft of eyes he ſeems not reft of ſight.

Which office of that little fiſh, may ſerve as a fit embleme to teach great ones & ſuperiours, that they ought not to contemne their inferiours; for they are not alwayes able ſo to ſubſiſt of themſelves, that they never ſtand in need of their helps who are but mean and baſe in the eyes of greatneſſe: there may come a time when the meaneſt perſon may do ſome good, and therefore there is no time wherein we ought to ſcorn ſuch a one, how mean ſoever he be.

An embleme drawn from the Whale and Muſculus; ſhewing that the meaneſt ought not to be contemned.

Furthermore, as the whale is befriended by the *Muſ-*

The Ork dares fight with the whale.
* *Plin. lib. 9. cap. 6.*

culus, ſo alſo he is as much infeſted by the * *Ork*; for albeit the *Ork* be leſſe then the whale, yet it is a nimbler fiſh,and cruell withall, having ſharp teeth, with which, as with an admired weapon, ſhe cruelly wounds the whale in the belly, and then floating into a ſhallow place, endangers the whale to follow after.

The Sword-fiſh.

The *Sword-fiſh* called *Xiphia*, is little like to any other fiſh: he hath an horrid head like an owl; a deep mouth as if it were ſome immenſive pit; ougly eyes, with a back and a bill like a ſword.

The Saw-fiſh.

There is alſo another great fiſh called *Serra*, or a *Saw-fiſh*, having an hard copled head with teeth like a ſaw, ſtanding in manner of a combe upon the head of a cock: with which, the ſaid fiſh when ſhe wants a prey, cutteth the bottome of ſhips, that the men being caſt away, a prey may be provided by feeding on their carcaſes.

The Unicorn of the ſea.

The *Monoceros*, or fiſh with one horn, may fitly be called the *Sea-unicorn*: it is a ſea-monſter, having a great horn in his forehead wherewith he is able to pierce through a ſhip. Howbeit his crueltie is much hindered in regard that it hath pleaſed the Almighty to make him very ſlow in motion, whereby thoſe who fear him have advantage given them to flie away.

The Sea-elephant.

The *Sea-elephant* is a fiſh which often goes on ſhore and ſleeps in the rocks, hanging by his two Elephant-like teeth (but both they and his bodie are farre bigger then the land-elephant) and being eſpied by men at ſea, they call to others on the ſhore, by whoſe help, uſing nets and gins and other inſtruments for that purpoſe, they together invelope his bodie, and then ſuddenly aſſaulting and awaking him, he leaps with a violent ruſh as if he would leap into the ſea, but being hampered and entangled by the fiſhers engines, he cannot; he is compelled therefore to yeeld himſelf to their mercie: who

having killed him do firſt skin him, then take out his fat; and of his skinne they make thongs, which are ſold for a great price, as being very ſtrong and ſuch as will never rot. *Olaus magnus* commendeth his teeth above the other parts of his bodie. *Lib.* 21. This fiſh thus ſleeping and caught ſuddenly, may be as a fit embleme of thoſe men who coming out of their right way, do fall aſleep in ſinne; and at laſt when death awakes them they think to go to heaven, or leap into the wayes of godlineſſe, but then it is too late: for they are taken as ſurely and as ſuddenly, as was that fool in the Goſpell, who thought he had goods laid up for many yeares.

An embleme drawn from the Sea elephant, concerning ſleep in ſinne.

The Crocodile.

The *Crocodile*, ſeeing it lives in the waters as well, or rather then on land, I reckon among the fiſhes. They be commonly found about the river *Nilus* in Egypt, and *Ganges* in India; and (as *Munſter* writeth in his coſmographie) it waxeth of a little thing to a very great beaſt. For his egges are much like unto gooſe egges, but the young which cometh of them taketh increaſe to 16 or 18 cubits in length. He liveth almoſt as long as a man, his back is hard and full of ſcales; he wants a tongue, but hath cruell teeth, two whereof be farre more terrible then the other, and much longer: his eyes are ſaid to be very dull in the water, but marvellous quick-ſighted when he is out of it; his tail extends it ſelf to an ample length, and his bitings are ſo ſharp and cruell that they can never be healed: he hath alſo ſhort feet and ſharp claws or nails, wherewith he helps to catch and diſmember either man or beaſt which he can lay hold on: howbeit, it is ſaid that he flies from thoſe that perſecute him, and perſecutes thoſe that flie him. *Munſt.*

A diſſembler like unto the Crocodile.

When he hath devoured a man and eaten up all but the head, he will ſit and weep over it, as if he expreſſed a great portion of ſorrow for his cruell fact: but it is nothing ſo. For when he weeps, it is becauſe his hungrie

 paunch

paunch wants ſuch another prey. And from hence the proverb took beginning, viz. *Lacrymæ Crocodili, Crocodile teares:* which is then verified, when one weeps cunningly without ſorrow, diſſembling heavineſſe out of craftineſſe: like unto many rich mens heirs, who mourn in their gowns, when they laugh in their ſleeves; or like to other diſſemblers of the ſame nature, who have ſorrow in their eyes, but joy and craftineſſe in their hearts.

Diſſemblers.

An embleme from the dog and Crocodile.

It is reported by ſome * authours, that the dogs in Egypt uſe to lap their water running, when they come at *Nilus*, for fear of the Crocodiles there. Which cannot but be a fit pattern for us in the uſe of pleaſures: for true it is, we may not ſtand to take a heartie draught, for then delights be dangerous; howbeit we may refreſh our ſelves with them as we go on our way, and may take them, but may not be taken by them: for when they detain us and cauſe us to ſtand ſtill, then their ſweet waters have fierce Crocodiles; or if not ſo, they have ſtrange Tarantula's, whoſe ſting cauſeth to die laughing.

* *Ælian. var. hiſt. lib.* 1.

How we ought to uſe pleaſure.

The Sea-hog.

Porcus marinus, or the *Sea-hog*, is a ſtrange kinde of fiſh, headed like an hog, with teeth and tusks like a boar, and a bending back like a creature begotten among ſwine: onely his tail and hinder parts is like to the tail of other fiſhes, and his foure legs are like to the legs of a dragon. Such a fiſh as this was taken up in the Germane ocean, in the yeare of our Lord 1537, as *Olaus* witneſſeth in his 21 book.

But in *Bermuda*, or in the ſea about the Summer iſlands, they have Sea-hogs of another kinde and faſhion, nothing ſo big nor terrible, without legs, good for food, and like to hogs in their heads.

The Swam-fisk.

Moreover, *Olaus* again makes mention of another fiſh, which they of *Norvegia* call a *Swam-fisk*: and this is the moſt greedie and gluttonous of all fiſhes. For it is continually

continually feeding and filling it ſelf, even up to the very mouth, untill he can hold no more; and his prey is upon other the ſmaller fiſhes. This likewiſe is his qualitie and condition; when he is in fear of any danger, he will ſo winde up himſelf and cover his head with the skinne and ſubſtance of his own body, that he is then but like unto a piece of a dead fiſh, and nothing like himſelf. Which feat he ſeldome doth without hurt or damage: For ſtill fearing that there be thoſe about him who will prey upon him and devoure him, he is compelled for lack of meat to feed upon the ſubſtance of his own body; chooſing rather to be devoured in part, then to be conſumed by other more ſtrong and powerfull fiſhes. Theſe and ſuch like are taken for their fat and oyl, rather then for any thing elſe which is uſefull in them.

Covetous cormorants like to the Swam-fisk.

And unto this fiſh I cannot but liken all greedy cormorants and covetous devourers of other men, being never ſatisfied with the meaſure of their oppreſſions, but lay houſe to houſe, and field to field, untill there be no more place; as the prophet Eſay ſpeaketh, chap. 5. 8. For *they covet fields, and take them by violence; and houſes, and take them away: ſo they oppreſſe a man and his houſe, even a man and his heritage,* Mich. 2. 2. But at the laſt, when they muſt give an account for all the things that they have done, then being oppreſſed by fear, as they oppreſſed others with cruelty, they would be glad to hide their heads, and rather conſume their own ſelves then be given up to the tormentours; ſaying with them in the Revelation, *Let the hills fall upon us, and the mountains cover us from the wrath of him who ſits upon the throne.* But it is madneſſe to run from puniſhment, and not from ſinne. And therefore to poſſeſſe all things, is to poſſeſſe God the poſſeſſour of all things. For omiſſion and commiſſion, are a wicked mans confuſion; and oppreſ-

ſours may verily look to feaſt the devil: for while they devoure the poore, the devil devoures them.

The Sea-horſe.

Equus marinus, the *Sea-horſe*, is moſt of all ſeen between Britain and Norway. In the Northern ſeas he will ſometimes ſleep upon a piece of ice as it floateth upon the waters: and ſeldome do the fiſhermen deſire to take them in their voyages to thoſe parts, but when they take few Whales. He hath an head like an horſe, and will ſometimes neigh; his feet are cloven like to the feet of a cow, and he ſeeks his repaſt as well on the land as in the ſea: but his hinder parts are like to other fiſhes, and his tail like theirs. *Ola. lib.* 21.

The Sea-cow and *calf.*

There be alſo *Sea-cows* and *Calves*, ſo called becauſe they do much reſemble ſuch kinde of creatures living upon land. The *Sea-cow* is a great, ſtrong, and fierce monſter, bringing forth young like her ſelf: ſhe is ſaid to be big ten moneths, and then delivered; ſometimes of two: but ofteneſt ſhe hath but one, and this follows her up and down whitherſoever ſhe goeth. *Olaus* writeth, that the *Sea-calf* is a great devourer of herrings, inſomuch that coming to the ſide of a net wherein they are hanged, ſhe will eat them up one by one untill few are left. And in the Indies the Spaniards uſe to catch a mighty fiſh, having large teats and dugs.

The Tortoiſe.

And thoſe who live at *Bermuda* or the Summer Iſlands, are much beholden to that fiſh which they call the *Turtle* or the *Tortoiſe*: ſhe will come on the ſhore and lay her * eggs in the ſands, a buſhell in the belly of ſome one; which being taken in time are very good and wholeſome meat, and ſweet: but if they lie long, the ſunne will hatch them. They have harping irons to catch theſe fiſhes; and being taken, one of them will ſerve to feaſt about fiftie men at a meal. And indeed thoſe ſeas afford varietie of very good fiſh, pleaſant and daintie, as I have heard them ſay who lived there.

* Concerning which fiſh ſee *Elian* alſo, *Var. Hiſtor. lib.* 1.

The Mermaids and *Mermen.*

But above all, the *Mermaids* and *Men-fiſh* ſeem to me the moſt ſtrange fiſh in the waters. Some have ſuppoſed them to be devils or ſpirits, in regard of their whooping noiſe that they make. For (as if they had power to raiſe extraordinarie ſtorms and tempeſts) the windes blow, ſeas rage, and clouds drop, preſently after they ſeem to call. Queſtionleſſe natures inſtinct works in them a quicker inſight, and more ſudden feeling and foreſight of theſe things, then is in man; which we ſee even in other creatures upon earth, as in fowls, who feeling the alteration of the aire in their feathers and quills, do plainly prognoſticate a change of weather before it appeareth to us. And of theſe, not onely the poets, but *others alſo have written. The Poets fein there were three *Mermaids* or *Sirens*; in their upper parts like maidens, and in their lower part fiſhes: which dwelling in the ſea of Sicilie would allure ſailers to them, and afterwards devoure them; being firſt brought aſleep with hearkening to their ſweet ſinging. Their names (they ſay) were *Parthenope*, *Lygia*, and *Leucaſia*; wherefore ſometime alluring women are ſaid to be *Sirens*.

* *Plin. lib.* 9. *cap.* 5. *Olaus Mag. lib.* 21. *cap.* 1. *Hiſt. Nether. lib.* 2. *pag.* 116. *Alex. ab Alexand. lib.* 3. *cap.* 8. *Genial. Dierum.*

A ſtorie of a Sea-woman.

Neither can I but admire what I finde recorded in the hiſtorie of the Netherlands, of a Sea-woman who was taken up in the ſtreights of a broken dike neare to the towns of *Campen* and *Edam*, brought thither by a ſea-tempeſt and high tide, where floating up and down and not finding a paſſage out again (by reaſon that the breach was ſtopped after the floud) was eſpied by certain women and their ſervants as they went to milk their kine in the neighbouring paſtures, who at the firſt were afraid of her, but ſeeing her often they reſolved to take her, which they did; and bringing her home, ſhe ſuffered her ſelf to be clothed, fed with bread, milk, and other meats, and would often ſtrive to ſteal again into the ſea, but being carefully watched ſhe could not: moreover ſhe

learned

learned to ſpinne, and perform other pettie offices of women; but at the firſt they cleanſed her of the ſea-moſſe which did ſtick about her. She was brought from *Edam* and kept at *Harlem*, where ſhe would obey her miſtris, and (as ſhe was taught) kneel down with her before the crucifix, never ſpake, but lived dumbe & continued alive (as ſome ſay) fifteen yeares; then ſhe died. This is credibly reported by the * authour of that hiſtory, by the writer of the chronicles of Holland, and in a book called the *Theatre of cities*. They took her in the yeare of our Lord 1403.

* Petie. tranſl. by Ed. *Grimſton*.

Moreover * *Plinie* telleth us of *Tritons*, and *Nereïdes*, which were Mermen, or Men-fiſh of the ſea. And in the yeare 1526 (as the authour of *Du Bartas* his ſummarie reporteth) there was taken in Norway, neare to a ſea-port called *Elpoch*, a certain fiſh reſembling a mitred Biſhop, who was kept alive ſome few dayes after his taking. And (as the ſaid authour writeth) there was one *Ferdinand Alvares*, ſecretarie to the ſtore-houſe of the Indians, who faithfully witneſſeth that he had ſeen not farre off from the Promontorie of the Moon, a young Sea-man coming out of the waters, who ſtole fiſhes from the fiſhermen, and eat them raw. Neither is *Olaus Magnus* ſilent in theſe things: For in his 21 book, and firſt chapter, having mentioned fiſhes like to dogs, cows, calves, horſes, aſſes, lions, eagles, dragons, and what not? he alſo ſaith, *Sunt & belluæ in mari quaſi hominis figuram imitantes, lugubres in cantu, ut Nereïdes*: *etiam marini homines, toto corpore abſolutâ ſimilitudine*, &c. that is, *There be monſters in the ſea, as it were imitating the ſhape of a man, having a dolefull kinde of ſound or ſinging, as the Nereïdes: There be alſo Sea-men of an abſolute proportion in their whole body: theſe are ſometimes ſeen to climbe up the ſhips in the night times, and ſuddenly to depreſſe that part upon which they ſit; and if they abide long, the whole ſhip ſinketh.*

* Lib. 9. cap. 5.

ſinketh. Yea (ſaith he) *this I adde from out the faithfull aſſertions of the Norway fiſhers, that when ſuch are taken, if they be not preſently let go again, there ariſeth ſuch a fierce tempeſt, with an horrid noiſe of thoſe kinde of creatures, and other ſea-monſters there aſſembled, that a man would think the very heaven were falling, and the vaulted roof of the world running to ruine; inſomuch that the fiſhermen have much ado to eſcape with their lives: whereupon they confirmed it as a law amongſt them, that if any chanced to hang ſuch a fiſh upon his hook, he ſhould ſuddenly cut the line and let him go.* But theſe ſudden tempeſts are very ſtrange, and how they ariſe with ſuch violent ſpeed, exceeds the bounds of ordinary admiration. Whereupon it is again ſuppoſed that theſe monſters are very devils, and by their power ſuch ſtrange ſtorms are raiſed. Howbeit for my part I think otherwiſe, and do much rather affirm that theſe ſtorms (in my judgement) are thus raiſed, namely by the thickening and breaking of the aire; which the ſnortling, ruſhing, and howling of theſe beaſts aſſembled in an innumerable companie, cauſeth. For it is certain that ſounds will break and alter the aire (as I have heard it of a citie, freed from the plague by the thundering noiſe of cannons) and alſo I ſuppoſe that the violent ruſhing of theſe beaſts cauſeth much water to flie up and thicken the aire, and by their howling and ſnortling under the waters, they do blow up and as it were attenuate the waves, and make them ariſe in a thinner ſubſtance then at other times; ſo that nature having all theſe helps, in an inſtant worketh to the amazement of the mariners, and often to the danger of their lives.

Beſides, ſhall we think that ſpirits uſe to feed, and will be ſo fooliſh as go and hang themſelves on an hook for a bait? They may have occult qualities (as the Loadſtone hath) to work ſtrange feats, and yet be neither

ſpirits nor devils: for experience likewiſe teacheth, that they die either ſooner or later after their taking; neither can a ſpirit have fleſh and bones as they have. But to conclude, *Alexander ab Alexandro*, in the third book of his geniall dayes, hath written one whole chapter (viz. the 8) concerning theſe ſea-men, affirming that it is no fabulous report to ſay there be ſuch: he deſcribeth them to be fiſh in their lower parts, and like to men in their upper parts; affirming moreover that they be very venereous and deſirous of women, loving them, or luſting after them. Whereupon he relates a ſtorie of a certain woman who was taken up and carried to the ſea by one of theſe Mermen, *concubitûs cauſâ*, that he might couple himſelf with her. Which monſter the inhabitants took ſoon after; but refuſing meat, he died: and they then made this law, that no woman ſhould adventure to come neare the ſea, except her husband were with her. This happened in *Epirus*, a countrey of Greece.

Another Hog-fiſh.

In the kingdome of *Congo*, which lieth in the African part of the world, there is in the river *Zaire*, another kinde of hog-fiſh differing from that already mentioned. It is called *Ambize*, *Angulo*, or *Hog-fiſh*. It hath as it were two hands, and a tail like a target, which eateth like pork, and whereof they make lard, and hath not the ſavour or taſte of fiſh. It feedeth on the graſſe that groweth on the banks of the river, and never goeth out: it hath a mouth like the mozell of an ox; and there be of them that weigh five hundred pound apiece. *Purchas.*

The Pontarof.

In the Weſt ſea there is a fiſh called the *Pontarof*, a cruell monſter, that taketh great pleaſure to carrie away young children, loving to play and ſport with them. *Du Bart. Summar. ex Oviedo, lib.* 13.

The Shark.

The fiſhes called *Sharks* are moſt ravenous devourers, and in the waters upon the coaſts of Africa, they have been ſeen with ſix or ſeven other ſmaller fiſhes, garded

with blew and green, attending like ſerving-men.

And omitting many, whether in the new-found world, in the Norway ſeas, or elſewhere, I come now to the *Dolphin*, that king of fiſhes; then whom there is not any which is ſwifter, none more charitable to his fellows, and (which is above all the reſt) none more loving to man. *Plinie* hath written much of this fiſh, in his ninth book, at the eighth chapter; and ſo have others alſo: affirming that he is not onely ſociable and deſirous of mans company, but delighted alſo in ſweet and ſenſe-charming muſick. *The Dolphin.*

Amongſt the fiſhes that did ſwiftly throng *Du Bart.*
To dance the meaſures of his mournfull ſong,
There was a Dolphin did the beſt afford
His nimble motions to the trembling chord.

But whether that in the ſtorie of *Arion* be true, I am not able to ſay. Perhaps their cenſure is none of the worſt, who perſwade themſelves it is a fable which was invented by thoſe who had heard of that famous hiſtorie of the Prophet Jonas: for divers ſtories of the Bible have been in this manner changed by the Pagans; as amongſt the reſt, that of Sennacherib was very counterfeitly told by *Herodotus*, when he makes mention of a great companie of mice (as he had his relation from the prieſts of Egypt) who came by night and eat off the feathers from his arrows, *Herod. lib.* 2. And the floud of *Deucalion* is related by *Ovid*, as if Noahs floud and that were all one. And the Grecians fable, upon the ſunnes going back in Hezechiahs time, that at the*birth of *Hercules* the ſunne made a longer night then at other times. What may be thought of *Arions* ſtorie.

* *Lucian.*

Howbeit this ſcruple may not take away the love of the Dolphin towards man. For beſides thoſe things related in *Plinie*, of a boy feeding a Dolphin, and carried on his back over the waters to ſchool, with ſuch like things in the ſaid authour; others alſo have in a manner written The Dolphin is loving and kinde

A ſtorie to the ſame purpoſe.

to the ſame purpoſe. And amongſt the reſt, *Elian* tells a ſtorie of a Dolphin and a boy: this boy being very fair, uſed with his companions to play by the ſea ſide, and to waſh with them in the water, practiſing likewiſe to ſwimme: which being perceived by a Dolphin frequenting that coaſt, the Dolphin fell into a great liking with this boy above the reſt, and uſed very familiarly to ſwimme by him ſide by ſide: the boy at the firſt was fearfull of this his unwonted companion; but through cuſtome he and the Dolphin grew ſo familiar, that they would be friendly antagoniſts, and contend together in ſwimming each by other: inſomuch that ſometimes the boy would get upon the Dolphins back, and ride through the waterie territories of Neptunes kingdome, as upon ſome proud pranſing horſe, and the Dolphin at all times would bring him ſafely to the ſhore again; of which the people in the adjoyning citie were eye-witneſſes, and that not ſeldome. At laſt it chanced that the boy, not carefull how he ſat upon the fiſhes back, but unadviſedly laying his belly too cloſe, was by the ſharp pricks growing there, wounded to death. And now the Dolphin perceiving by the weight of his bodie, and by the bloud which ſtained the waters, that the boy was dead, ſpeedily ſwimmeth with all his force to the land, and there laying him down, for very ſorrow died by him. In memorie whereof, let theſe few lines be added,

The fiſh would live, but that the boy muſt die:
The dying boy the living fiſh torments.
The fiſh tormented hath no time to crie;
But with his grief his life he ſadly vents.
Oh where is love or grief ſo firm as this?
Of ſuch true love and grief moſt men do miſſe.

The Sea-fox.

The *Sea-fox* is a fiſh that hath a long tail, & is ſubtil in his chaſe, having a ſtrong ſent as the Land-fox hath. He uſeth to ſwallow his young into his belly in time of dan-

ger

ger (as the *Balæna* doth) which ſome alſo attribute to the Dolphin. This fiſh and the *Amia* uſe to deceive the fiſherman, either by leaping at, or by ſucking up ſo much of his line, that they may be ſure to bite off the hook. *Ælian. var. hiſt. lib.* 1.

The chaſte Cantharus

The *Cantharus* is an admired pattern of chaſtitie. *Elian* * ſpeaketh of the ardent love of this *Cantharus*, and ſaith that between him and the adulterous *Sargon*, is great enmitie: for he will fight as couragiouſly for his mate, as *Paris* could fight for *Helena*; being in this the true embleme of a loyall couple, who hate defiled ſheets, loving and living conſtantly together.

* *Hiſt. animal. lib.* 1. *cap.* 26.

The Mullet.

Like unto which is the *Mullet*; who albeit ſhe be a fearfull fiſh (as *Plinie* telleth us, *lib.* 9. *cap.* 17.) and will hide her head for fear; yet ſeeing her male taken, ſhe followeth after him as farre as ſhe can, chooſing rather to die with him, then to be left her ſelf alone.

The Sargon.

But the *Sargon* is contrarie; for this is an adulterous fiſh, daily changing mates; and not ſo content, uſeth to go on the graſſie ſhore, horning the he-goats who had horns before. For (as * *Elian* writeth) his luſtfull love towards the ſhe-goat is ſo furious, that the fiſhermen uſe to take theſe fiſhes by covering themſelves with a goats skinne.

* *Hiſt. animal. lib.* 1. *cap.* 23.

An embleme againſt adulterie.

And doth not this fiſh bear a true embleme againſt adulterers? Yes ſurely doth it. For thoſe who make horns on other mens heads, do but make engines to toſſe themſelves to hell.

Alciat. Emb.

Capra refert ſcortum, ſimilis fit Sargus amanti,
Qui miſer obſcœno captus amore perit.
The goat, a harlot doth reſemble well;
The Sargus like unto the lover is,
Who (poore wretch!) taken, is condemn'd to hell,
And for his luſt depriv'd of heav'nly bliſſe.

Howbeit, a Ten in the hundred, or a Fox-furr'd-clouted-pated fornicatour, who to his tenants wife is ſometimes a lecherous adminiſtratour, cannot ſee it; neither will ſuch beleeve that whores are the hackneys which men ride upon into Devils-ditch: for thither do they gallop, like the deceived *Sargus*, caught by the fiſher in the skinne of a goat.

A fiſh with wings.

It affords a fit embleme concerning thriving.

Hoga is ſaid to be a fiſh as big as a mackerell, or (as ſome ſay) no bigger then a herring. This fiſh hath wings, which do not ſo much help her by flying to eſcape a farre greater fiſh, as endanger her to the mercileſſe crueltie of another enemie; I mean a certain ſea-fowl, which waits but for ſuch an oportunitie to devour her. Neither can it flie high or farre, or longer then her moiſtned wings keep wet; nor yet ſwimme faſt, having exchanged finnes for wings. So (ſaith one) have I ſeen men thrive worſe that have two trades, then ſuch as have been skilfull or thriftie in one.

Harm watch, harm catch.

The birds that watch for theſe fiſhes, are in feathers as big as crows, but in fleſh little bigger then a ſparrow, & are wiſer to hunt after others then to ſave themſelves; for they be ſo tame that they will light upon the hatches of ſhips, and ſuffer themſelves to be taken. So have I ſeen ſome ſo eager to hurt others, that in the mean time they have runne themſelves into as great a danger: and well worthy are they of ſuch a reward. For if a treacherous Haman provide a gallows for an harmleſſe Mordecai, it is no pitie to ſee the preparer give it hanſell, or firſt hanged. Neither will any one mourn to ſee an Achitophels craftineſſe catch himſelf in his own wilineſſe.

He that will others guide to Charybs ſhelf,
On Scylla's rock may fearleſſe ſplit himſelf.

The Remora.

The *Remora* is a ſmall fiſh which cleaveth to the bottome of a ſhip, and doth as ſtrongly as ſtrangely ſtay it,

called therefore by ſome the *Stop-ſhip*. Of which there can be no more reaſon given, then of the loadſtones drawing iron: neither is it poſſible to ſhew the cauſe of all ſecrets in nature.

The Torpedo.

The properties of the *Cramp-fiſh* are in a manner as ſtrange. For the nature of it is to make the hands of ſuch as touch it benummed, albeit they touch it with a long pole. *Plin. lib.* 32. *cap.* 1. He is called in latine *Torpedo*, which is a name proceeding from his benumming qualitie. Some attribute the propertie of this ſecret to the aire which iſſueth from the bodie of the *Torpedo*; ſuppoſing it to be ſo ſubtill, that paſſing along by the line and the pole, it affecteth and afflicteth the arms of the fiſherman. Many authours have written of this fiſh, as *Plutarch, Plinie, Elian, Ariſtotle*, and ſundrie others. It is ſaid to be of the form and greatneſſe of a Thornback, and (as I ſaid) of a fell and a banefull breath; wherewith ſhe doth not onely benumme the fiſhers hand, but alſo the neighbouring fiſhes who come neare her, that ſo being as if they were dead, ſhe may the more eaſily prey upon them: like many a rich man, ſlain by his heir, in hope to poſſeſſe his lands.

The Barble

The *Barble* is a fiſh that will not meddle with the bait, untill with her tail ſhe have unhooked it from the hook. This fiſh carries a warie jealouſie alwayes with it, and will not be deceived by all the baits the fiſher can deviſe. *Plutarch*, in his book *De induſtria animalium*, ſetteth down the carefull circumſpection of this creature; affirming moreover that if with the beating of her tail ſhe can do no good, ſhe then opening her mouth a little, doth onely touch the bait with the tip of her lips, and gnaw it round about. Which is indeed a fit embleme againſt the raſhneſſe of thoſe who will not look before they leap, but are ſo fool-hardie that without either fear or wit they will undertake ſtrange projects, and

Againſt raſhneſſe.

and beleeve every fair word; as if the graſſe had no ſnakes, or a ſugred pill no inward bitterneſſe.

The Scolopendra.

** De animal. lib. 13. cap. 23.*

The *Scolopendra* is a fiſh more credulous, but of as ſtrange a propertie: For, as *Plinie* writeth in his ninth book and 43 chapter (to which * *Elian* is not oppoſite) this is a fiſh which refuſeth not the bait, but feeling himſelf taken with the hook caſteth out his bowels, and then having looſed the hook ſwalloweth them again.

An embleme from this fiſh, of ſwallowing the baits of ſinne.

Now this is a fit embleme of all ſuch as have ſwallowed down the deceitfull baits of ſinne; aptly affording this inſtruction, that if they will be ſafe and ſecure, they muſt *ſearch themſelves.* For if thoſe baits which we have ſwallowed, through the ſeeming good of deceitfull ſinne, if they, I ſay, be not vomited up again, there is a hook which will hold us faſt, and hale us headlong into miſerie.

The Sturgeon.

An embleme concerning thriving.

The *Sturgeon* is a fiſh whoſe ſcales turn backwards, and therefore he ſwimmeth againſt the ſtream. So have I ſeen ſome effect their projects by means and wayes, contrarie to the common courſe of men. Nay, ſome have been ſo happie as to thrive in reſpect of themſelves, when others could not but judge that the world muſt needs go backwards with them.

The Calamarie.

The *Calamarie* is ſometimes called the *Sea-clerk*, having as it were a knife and a pen. Some call him the *Ink-horn-fiſh*, becauſe he hath a black skinne like ink, which ſerveth him in ſtead of bloud. And of theſe fiſhes there be more kindes then one: for the *Cuttle* hath alſo an inkie juice in ſtead of bloud. You may ſee three figures of this fiſh in the fourth book of *Geſners* hiſtorie of fiſhes; and * *Plinie*, ſpeaking of theſe fiſhes, affirmeth that both male and female, when they finde themſelves ſo farre forth diſcovered, that if they cannot be hid they muſt be taken, do then caſt this their ink into the water;

** Lib. 9. cap. 29.*

ter; and ſo by colouring it, they obſcure and darken it: and the water being darkened, they eſcape.

For through the clouds of this black inkie night,
They dazling paſſe the greedie fiſhers ſight.

The *Purple* is a kinde of ſhell-fiſh, from whence is gathered a moſt neceſſary juice for the dying of ſilks and ſuch like things. This juice is in the middeſt of her mouth and jaws, and is to be had in the ſpring time; for at other times ſhe is barren and wants it. She loſeth her life with the loſſe of this juice, and liveth no longer then this abideth in her: Wherefore *Munſter* in his coſmography giveth this counſell, to take them alive; adding moreover that ſhe is a great devourer of little ſhell-fiſh. She hath (ſaith he) a long tongue which is alwayes moving; and by this ſhe getteth her prey. Some ſay that they differ in colour according to their nearneſſe or farneſſe from the ſunne: whereupon it comes to paſſe that in Africa they have as it were a violet colour, and at Tyrus a redder colour. *The Purple.*

Polypus is a fiſh with many feet, and a round head neare unto them; it is a great enemy to the Lobſter: and (as *Elian*, and other authours write) they can often change their colour, and by that project devoure other fiſhes. Their uſe and cuſtome is to lie lurking cloſely by the ſides and roots of rocks, changing themſelves into the colour of the ſame thing unto which they cleave; inſomuch that they ſeem as a part of the rock: whither when the fooliſh fiſh ſwim, they fall into danger: for whileſt they dread nothing, theſe *Polypodes* ſuddenly prey upon them and devoure them. And indeed this is the conſtancie and unfeared treacherie, which is often found in many men, who will be any thing for their own ends, and nothing without them; ſparing none for their own purpoſes, nor loving any but to effect them. Their heads indeed may well be neare their feet: for they prize the *The Polypus.* Treacherous perſons like to the Polypus.

traſh we trample on, farre above the joyes of heaven; elſe would they never work their fond purpoſes by deceitfull means, and damage others to help themſelves.

The Pearl-fiſh.

Amongſt the ſeverall ſorts of ſhell-fiſhes, the gliſtering *Pearl-fiſh* deſerves remembrance;not onely in reſpect of her ſelf, but alſo in regard of the *Prawn* , another fiſh and her companion: for between theſe two there is a moſt firm league of friendſhip, much kindeneſſe, and ſuch familiaritie as cannot but breed admiration in the reader. They have a ſubtill kinde of hunting, which being ended, they divide their prey in loving manner: for ſeeing they one help the other in the getting of it, they likewiſe joyn in the equall ſharing. And in few words, thus it is: (of which ye may reade in *Plinie*, *Plutarch*, *Elian*, &c.) When the *Pearl-fiſh* gapeth wide, ſhe hath a curious gliſtering within her ſhell, by which ſhe allureth the ſmall fry to come ſwimming into her: which when her companion the *Prawn* perceiveth, he gives her a ſecret touch with one of his prickles; whereupon ſhe ſhuts her gaping ſhell, and ſo incloſeth her wiſhed prey: then (as I ſaid) they equally ſhare them out and feed themſelves. And thus day by day they get their livings, like a combined knot of cheaters, who have no other trade then the cunning deceit of quaint couſenage; hooking in the ſimpler ſort with ſuch ſubtill tricks, that be their purſes ſtuft with either more or leſſe, they know a way to ſound the bottome, and ſend them lighter home; lighter in purſe, though heavier in heart.

The Pearl and the Prawn emblemes of cheating.

The Gilt-head.

The foreſaid authours make mention of the *Gilt-head* or *Golden-eye*, which helpeth the one the other out of a ſnare, or from off an hook: for if the inſnared fiſh cannot help himſelf by looſing the ſnare with his tail, then will his companion put to his mouth, and ſet him free. Or if the one ſee the other hanged on a hook, it

may be eaſily obſerved how his free mate will skip at the line, and never leave till he have broke it off. Which may ſerve well to teach us, that we ought not to leave our friends in danger, but do the beſt and utmoſt that we can to ſet them free. For a friend is never known till ſuch an occaſion ſhall diſcover him: at other times we have friends enow.

An embleme of friendſhip.

The Plaice

The *Plaice*, if it be well grown, and ſomething thick, is ſaid to be a paſſing good fiſh: It takes the name from *Placeo, to pleaſe*, becauſe it pleaſeth the palate.

The Sole & Whiting

That fiſh which we call the *Sole* is a very wholeſome fiſh: And ſo is the *Whiting*, often entertained in the court.

Gurnard.

I have heard the *Gurnard* likewiſe much commended.

Conger.

But the *Conger* is hard of ſubſtance, and therefore not eaſie to be digeſted.

Salmon.

And ſo alſo is the *Salmon* hard of digeſtion, although it be a pleaſant fiſh, and very ſweet, eſpecially the belly. Whereupon it comes to paſſe that we do not eat it hot, or preſently after it is boyled.

Thornback.

The *Ray* or *Thornback* is ſcarce ſo wholeſome as other fiſh; for Phyſicians write that it makes men ſubject to the falling evil, by reaſon that it is a fiſh full of ſuperfluous juice. Howbeit the pricks which grow without upon the skinne, if they be pulled up by the roots, dried, made into powder, and given faſting in White or Rheniſh wine, is an excellent medicine to avoid gravell and to break the ſtone.

A medicine againſt the ſtone.

Herring.

Herring is a fiſh common and cheap, very dangerous if they be not moderately eaten freſh; for we often ſee that want of care in the eating of them, caſteth many into fevers. And as for Red Herrings and Red Sprats, they muſt needs have little wholeſomeneſſe or nouriſhment in them: for, if we may beleeve the learned,

they give as good nouriſhment to the bodie, as ruſtie Bacon.

Eeles. We reade that in the river *Ganges* are *Eeles* of an extraordinarie bigneſſe and length. This fiſh is never better moved from his neſt then in a thunder. They be not bred out of ſpawn as other fiſhes, but from the ſlime and dirt of the earth, as the common opinion goeth: and of all fiſhes which are toothſome, theſe are the leaſt wholeſome. They breed agues, ſtop and hurt the voice, procure the ſtone by reaſon of their great ſliminеſſe, and do alſo diſpoſe a man to the gowt by breeding ſuch matter as brings pain in the joynts. But know that after *Eeles* and *Lampreys*, we ſhould drink good ſtrong wine; and indeed generally with all kindes of fiſh, wine is very wholeſome.

The Shad. The *Shad* is never in ſeaſon but in the ſpring; for at other times it is full of bones.

And in the choice of fiſh this is a rule, that ſuch as have ſcales and finnes are beſt: for many ſcales and finnes betoken the pureneſſe of their ſubſtance, as the phyſicians tell us.

The Gogion or Gudgion. The *Gogion* is a daintie fiſh, and found aſwell in the ſea as in freſh waters; of which there be ſundry ſorts: but the beſt live in ſandie places, and about rocks.

The Tench The *Tench* is commonly called the Phyſician of other fiſhes: for when they be hurt, they heal themſelves again by touching the *Tench*, finding the ſlime of his body to be as a ſoveraigne ſalve.

The Perch and Pike. The *Perch* uſeth to wound others with his ſharp fins, whereupon the *Pike* or *Pickerell* dares not devoure him. Both theſe give the body pure nouriſhment, by reaſon of their firm and hard ſubſtance.

The Trout The *Roch*, *Dace*, *Chevine*, *Bream*, *Smelt*, and *Carp*, are good. But the *Trout* is admirable: for this is ſo ſound in nouriſhment, that when we would ſpeak of one who is

ſound

ſound indeed, we ſay that he is as ſound as a *Trout*. This is in ſome kinde a fooliſh fiſh, and an embleme of one who loves to be flattered: for when he is once in his hold, you may take him with your hands by tickling, rubbing, or clawing him under the bellie.

I will not ſay who elſe is like this fiſh, for fear I ſhould offend ſome ſqueamiſh dame: but let not her anger ſhew her wantonneſſe; and ſo we are both charmed to hold our peace: ſhe, to ſalve her own credit; and I, to end this preſent ſection: wherein I do confeſſe I might have ſpoken of ſundry other fiſhes, but I had rather ſend my reader to *Geſner* and ſuch other ample authours, then tire him with my relations.

Sect. 2.

Containing the ſecond part of this fifth day, which is of Birds, or Fowl, flying in the open firmament of heaven.

FRom fiſhes I muſt come to birds, from the water to the aire, and teach my pen to flie a while with the feathered fowls, as before it was ſwimming with the fearfull ſilent fiſh.

And now why God hath joyned the creation of fiſh and fowl together, may without curioſitie be obſerved; to wit, becauſe he would in every work and part thereof continue an harmonious order. Great is the likeneſſe between fiſh and fowl, whether it be that we conſider the naturall place wherein either of them live, or that we conſider their reſemblance in parts, or their manner of motion. For firſt, the place of fiſhes is the water; the place of fowls the aire: both which are diaphanous, cleare, moiſt, and eaſie yeelding elements. Secondly, that which finnes be to fiſhes, wings and feathers are to birds. And thirdly, that which ſwimming is to fiſhes in

in the waters, flying is to birds in the aire. The one moves himſelf by his finnes, the other by his wings. The one cuts and glideth through the liquid aire, the other ſhoots and darteth through the humid water. The one makes paths in that ſubtil concave between heaven and earth ,the other draws furrows in the ploughed ſea:and both tracts are indiſcernible; either place again cloſing & no longer open then their native dwellers flit through their yeelding gates.

The Eagle

And firſt of all me thinks I ſee the loftie *Eagle*, king of birds, towring on high in the heaven-aſpiring aire.

And amongſt all fowls, the Eagle onely can move her ſelf ſtraight upward and downward, perpendicularly, without any collaterall declining. *Munſter.* This bird is commended for her faithfulneſſe towards other birds in ſome kinde, though ſometimes ſhe ſhew her ſelf cruell. They all ſtand in awe of her: and when ſhe hath gotten meat ſhe uſeth to communicate it unto ſuch fowls as do accompany with her; onely this ſome affirm, that when ſhe hath no more to make diſtribution of, then ſhe will attach ſome of her gueſts, and for lack of food, diſmember them. Her ſight is ſharp and quick, inſomuch that being in the higheſt part of the aire, ſhe can eaſily ſee what falleth on the land, and thereupon the ſooner finde her prey. It is ſaid that ſhe can gaze upon the ſunne and not be blinde, and will fight eagerly againſt the Dragon: for the Dragon greedily coveting the Eagles egges, cauſeth many conflicts to be between them.

The Poets have called her Joves bird, and Jupiters armour-bearer, becauſe ſhe is never hurt with lightning. She is a bird tenderly affected towards her young; inſomuch that ſhe will endanger her own bodie to ſecure them, bearing her young ones on her back when ſhe perceiveth them to be aſſaulted with arrows. Hares, Harts, Geeſe and Cranes, are ſuch creatures as this bird

uſeth

uſeth to prey upon. And for her practiſe in killing the Hart, thus it is: when ſhe laboureth to drive the Hart headlong to ruine, ſhe gathereth (ſaith *Munſter*) much duſt as ſhe flieth, and ſitting upon the Harts horns, ſhaketh it into his eyes, and with her wings beateth him about the mouth, untill at laſt the poore Hart is glad to fall fainting to the ground.

The Eagle buildeth her neſt in the rocks and high places; and the propertie of the young Eagle is, when ſhe findeth a dead carcaſe, firſt of all to pick out the eye. And ſo (ſaith one) do all ſeducing hereticks, firſt put out the right eye of knowledge, that thereby they may the better leade along their ſeduced Proſelites.

And note that although the Eagle be very tender over her young, yet when they be able to flie of themſelves, ſhe caſteth them out of her neſt; becauſe ſhe would have them ſhift and no longer depend upon their damme. Which is a good example, ſaith the ſame authour, for domeſticall diſcipline; namely, that parents ſhould not bring up their children in idleneſſe, but even from their youth exerciſe them in honeſt labour, training them up to ſome vocation.

Parents ought not to bring up their children in idleneſſe; by an example taken from the Eagle.

Moreover, *Ariſtotle* writeth, that when the Eagle waxeth old, the upper part of her bill ſo groweth over and increaſeth, that in the end ſhe dieth of famine. But *Auguſtine* obſerveth further that when the Eagle is thus overgrown, ſhe beateth her bill upon a rock, and ſo by ſtriking off her cumberſome part, ſhe recovereth her ſtrength and eating; to which the Pſalmiſt alludeth, Pſal. 103.5. *Which maketh thee young and luſtie as an Eagle.*

The Phenix.

The *Phenix*, ſaith *Munſter*, is a noble bird, and is but one in the world. *Cornelius Valerius* (whom * *Plinie* mentioneth) doth witneſſe that when *Quintus Plautius* and *Sex. Papinius* were Conſuls, one was ſeen to flie into

* *Lib. 10. cap. 2.*

Annal. lib. 6.

into Egypt. And *Tacitus* alſo writeth, that when *Lucius Vitellius* and *Paulus Fabius* were Conſuls, another was likewiſe ſeen to flie thither: and yet not another, but the ſame rather; for there was not above two yeares difference in the time of this appearance; *Vitellius* and *Fabius* being Conſuls in the yeare of the citie 786, and *Plautius* with *Papinius* in the yeare 788. * *Dion* was perſwaded that this bird thus ſhewing her ſelf, did betoken the death of *Tiberius*: but our countreyman † Mr *Lydiat* rather thinketh, that it pointed out the time when Chriſt, that true Phenix, did both die and riſe again: and ſo alſo thinketh *Carion*, in his chron. *lib.* 3.

* *Lib.* 58.

† *Lib. de emend. temp. & alio quodam lib. cap.* 21.

This bird (if we may beleeve what is written) is about the bigneſſe of an Eagle, having a glittering brightneſſe in the feathers of her neck, like unto gold; in other parts purple, with an azured tail, but ſo as in ſome places it is of a roſe colour: her head hath on it a plume or tuft of feathers. Some ſay ſhe liveth five hundred yeares; others give her ſix hundred and ſixtie: and, as *Plinie* writeth, this bird hath her ſetled habitation in *Arabia Felix*. When ſhe waxeth old, ſhe is ſaid to make her a neſt of Caſſia, with branches of the frankincenſe tree, into which ſhe putteth other odours, and ſo dieth upon them: and then, out of her bones and marrow, there ſpringeth firſt a little worm, which afterwards comes to be a young Phenix.

Howbeit many think that all this is fabulous: for (beſides the differing reports which go of this bird) what *ſpecies* or kinde of any creature can be rehearſed, whereof there is never but one? and whereas the Lord ſaid to all his creatures, *Increaſe and multiplie*, this benediction ſhould take no place in the Phenix which multiplieth not. And again, ſeeing all creatures which came into the Ark, came by two and two, the male and female, it muſt needs follow that the Phenix by this means periſhed.

periſhed. And ſo ſaith one, *As for the Phenix, I (and not I alone) think it a fable, becauſe it agreeth neither to reaſon nor likelihood, but plainly diſagreeth to the hiſtorie of the creation and of Noahs floud, in both which God made all male and female, and commanded them to increaſe and multiplie.*

The Griffon.

The *Griffon* is a creature (if there be any ſuch; for many doubt it) which whether I may reckon amongſt the birds or beaſts, I cannot tell. Howbeit as I finde him marked by * *Ælianus*, he is thus deſcribed; namely that he is a kinde of beaſt with foure feet, keeping moſt of all in *India*, being as mightie in ſtrength as a lion: he hath wings and crooked talons, black on the back, and in the forepart purple. His wings be ſomewhat white, his bill and mouth like an eagles bill, his eyes fierie; he is hard to be taken except he be young, he maketh his neſt in the high mountains, and fighteth with every kinde of beaſt, ſaving the lion and elephant: he diggeth up gold in deſert places, and giveth repulſe to thoſe that come neare him. But (as I ſaid) ſome doubt whether there be any ſuch creature or no: which, for my part, ſhall be left to every mans libertie.

* See alſo *Munſt.* Coſmog.

The Oſtrich.

The *Oſtrich* is compounded as it were of a bird and a beaſt, and is eſpecially found in *Africa:* he is partly like a camell in his long legs and feet, partly like a ſparrow in his head and bill, though much greater. Some ſay his head is covered with ſmall hairs, his eyes be groſſe and black, his neck is long, and (as I ſaid) his bill is ſhort and ſharp like a ſparrows bill, and his feet hath as it were a bipartite hoof. He is ſaid to exceed the height of a man on horſeback; and as for his wings they help him little: howbeit we make much uſe of his feathers, as is well known. And in one thing he is like the woodcock; for hiding his head he never fears his bodie.

Job 39. 14, 15.

Job ſpeaketh that he is forgetfull; for when this bird hath laid her egges (which ſhe hides in the ſand, and are hatched by the ſunne) ſhe forgetteth them, untill the young come forth, and then the males are forced to feed and cheriſh them. So have I ſeen many mothers refuſing to nurſe their children; and, if they could, would have others likewiſe bear them: but putting them forth, I beleeve many periſh for want of care and due attendance: for it is not poſſible that a nurſe ſhould have that tender affection which belongs to a mother; and many times, with the nurſes milk, the children ſuck the nurſes vices. Neceſſitie therefore, and a prudent choice, ſhould ſeek out nurſes; as we ſee it Gen. 21.7. Moreover it is ſaid, that this bird is of ſuch ſtrong digeſtion that ſhe will eat iron: and when ſhe ſeeth that ſhe cannot avoid taking, ſhe caſteth ſtones with her claws againſt her followers, by which ſhe often hurteth them.

The Oſtrich like women who will not nurſe their children.

Ibis.

Ibis is a tall ſtrong bird, having a bill of great length; he doth exceeding much good in deſtroying ſerpents. Theſe birds live in *Egypt*, and the ſerpents brought out of *Lybia* thither, by the Southern winde, are killed by them, *Plin. lib.* 10. *cap.* 28. See alſo afterwards in the *Stork*.

The Kite.

The *Kite* is well known: ſhe is a fowl which flieth ſoftly untill ſhe eſpie her prey; ſhe hath quick eyes, will flie high into the aire in hot cleare weather, and by the turning of her tail ſhe directs her bodie, even as a great lazie ſhip is ordered by the helm. *Ariſtotle* obſerves that all ſuch fowls as have talons, cannot devoure any meat but fleſh: and if any other food be thruſt into their mouthes, they cannot eat it.

Emblemes from the Kite, concerning the covetous gripers of this world.

There is great enmitie between the kite and the raven, it being an uſuall thing for the kite to robbe the raven, as being better in talons and flying. So have I ſeen the gripers and catchpoles of this world deſtroy one another,

another, the leſſe mightie alwayes devoured by the ſtronger and more potent. And (me thinks) the kites feeding upon carrion, is a fit embleme of the envious perſon, who rejoyceth in the fall of others: for there be many in the world who care not what men fall, ſo they may riſe; building their own houſes out of the bloud and ruine of others. Envie ſhadowed forth.

Howbeit, it is obſerved by *Ariſtotle*, that the kite being a ravenous bird, bringeth forth but two young ones at a time; wherein nature hath been very provident and carefull, to ſuffer ſuch ravenous fowls to increaſe no faſter. And ſo (ſaith one) it is commonly ſeen in the world, that many rich cormorants (or corn-vorants rather) are either childleſſe and have no children, or elſe they abound not in many; and yet we can ſee no end of their ſcraping, pinching, and oppreſſing. *There is one alone* (ſaith Solomon) *and there is not a ſecond, which hath neither ſonne nor brother, and yet there is no end of all his travell*, Eccleſ. 4. 8.

The Raven

The *Raven* alſo is a fowl given to rapacitie and devouring of fleſh, great of bodie, ſlow in flight, ſharp in ſight, frequenting much the countreys of *Italie, Spain, Egypt*, and about the Alps. But this (ſaith *Munſter*) is to be underſtood of the great kinde of ravens.

This fowl doth greatly above all others covet mens carcaſes, and (as ſome think) by a ſingular inſtinct and naturall gift, it hath underſtanding of mans death, preſaging it a few dayes before. But whether that be true or not, this is certain, that it haunteth places of battell, with ſolitarie ruines; and like to the young eagles, it picketh out the eye of a dead corps firſt of all, becauſe (as ſome ſuppoſe) he ſeeth his own image in the clearneſſe of the eye; and ſo like coveteth the like. The fox and this bird are very friendly, but both at enmitie with the hawk; that being the chiefeſt cauſe of their familiaritie. An emblem from the Fox and Raven, concerning companions in ill, &c.

ritie. And ſo have I ſeen one man love another the better, for hating him whom he abhorreth: or one, like the fox, will ſometimes plot anothers ruine, that the other, like the raven, may prey upon him.

Good to help digeſtion.

Munſter telleth us that the skinne of a raven well tewed and dreſſed with the feathers on it, is exceeding good to be laid to a weak and ſickly ſtomack; for it greatly helps digeſtion.

Plin. lib. 10. *cap.* 12.

And again, ſhe is noted for an unkinde bird to her young ones, * expelling them out of their neſt before their full and compleat time, leaving them to their ſelves before they are able to ſhift; and ſo crying for food, God by his providence provideth for them: whereupon it is ſaid, that *the young ravens crie unto God* : or, *which feedeth the young ravens that call upon him*, Pſal. 147.9. And in this act, theſe and the like birds are emblemes of ſuch as want naturall affection. And indeed the young ones afterwards prove as cruell to their dammes: for when they be old, and have their bills overgrown, they die of famine, not ſharpning their bills again, by beating them on a ſtone, as the eagle doth: * neither will their young ones help them, but rather ſometimes ſet upon them, when they are not able to reſiſt. It is not good therefore to uſe children too harſhly in their minoritie, leſt when *Senes* come to be *Pueri* again, they finde as little favour at their hands as they ſhewed before. And of this, parents, maſters, tutours, and guardians ſhould be carefull; learning their leſſon from theſe unnaturall birds. But more I may ſpare to adde; for the well affected are alſo well inſtructed to put a difference between fooliſh cockering, and cruell handling: knowing with * Solomon that *Where the rod is ſpared, the childe is ſpoiled:* and with Paul confeſſing likewiſe, that they ought not to be bitter to them, *leſt thereby they provoke them to wrath*, Epheſ. 6.4. Moreover, let

Againſt ſuch as want naturall affection.

Ælian. de animal. lib. 3. *cap.* 43.

Children ſhould not be uſed too harſhly in their minoritie.

* Prov. 13. 24. and chap. 23. 13.

it be obſerved that ſome authours affirm there is alſo the raven of the ſea, which is like in proportion to the other raven, onely differing in colour, as being white: Now *Ariſtotle* thinketh that this happeneth by reaſon of ſome paſſion or accident in the generation. Neither (as is thought) doth the raven conceive by conjunction of male and female, but rather by a kinde of billing at the mouth, which † *Plinie* mentioneth as an opinion of the common people; ſaying, *Ore eos parere aut coire vulgus arbitratur: ideóque gravidas, ſi ederint corvinum ovum, per os partum reddere*; which is very ſtrange, if it ſhould be true: and therefore *Ariſtotle* denieth it; onely thinking that their billing or kiſſing is but like unto that amongſt the doves. And as for the Engliſh name *Raven*, given to this bird, it is ſo called of *ravening* and *devouring*: In Greek it is κόραξ, of κρώζειν, which ſignifieth *Crocitare, to croke*; and in Latine, *Corvus*; under which name we comprehend the crows as well as the ravens.

† *Lib.* 10. *cap.* 12.

The egges of ravens are naught for big-bellied women.

The ancient Emperours of Rome, and other heathen Princes, had their Soothſayers, and beholders of birds: now theſe gave great heed to the ravens, and would diligently look upon their eyes; marking, in time of warre, to what part they turned: for they ſuppoſed that the raven did preſage which ſide ſhould periſh in battell; and would alwayes therefore have her eye fixed or turned that way, or to that partie; as it were ſhewing her longing deſire to be feeding on their carcaſes. Which is ſomewhat confirmed by that which *Plinie* writeth of the ravens flying out of *Athens* and *Peloponneſus*; ſaying, *Nam cùm Mediæ hoſpites occiſi ſunt, omnes è Peloponneſo & Attica regione volaverunt. Plin. ibid.* Which flocking to the fight was for their fat prey, as though there had been in them ſome ſenſe of the preſent action.

Furthermore, this I finde again recorded by *Plin. lib.* 10. *cap.* 43. that when *Marcus Servilius* and *C. Ceſtius*

were Conſuls, there was a ſolemne funerall of a raven celebrated at Rome, upon the fifth calends of April: and this being ſo neare the time of our Saviours paſſion as it was, did (as ſome obſerve) not unfitly ſhadow forth the devils funerall, and deſtruction of his kingdome among the Gentiles. For as the raven delighteth in ſolitarie or deſert manſions, Iſai. 34. 11. ſo doth the devil walk through deſert places, as we ſee it, Matth. 12. 43. In which reſemblance, he is fitly called the devils bird: and this funerall may as well prove the time of Chriſts death and buriall, as *Dions* Phenix, appearing about the ſame time, was uſed by *Carion*, and Mr *Lydiat*, to ſhew the yeare of his reſurrection.

The Pelican.
† *Lib.* 10. *cap.* 47.

The *Pelican* is that bird which † *Plinie* calleth *Onocratalus*, and is much like the ſwanne in ſhape and proportion, excepting in the wideneſſe of his gullet and capacitie of his maw. Of this fowl there be two ſorts; one that liveth by the waters, another which is the Pelican of the deſert.

* Πελεκᾶν, comes from πελεκάω, *perforo, to beat* or *pierce.*

This is a melancholy bird, and takes the name of *Pelican*, from the Greek * πελεκᾶν, ſo called of *ſmiting* or *piercing*: which is in regard that by piercing his breaſt he reviveth his young ones with his own bloud, when they are bitten and killed of ſerpents: or having killed them with his bill, he reviveth them again by his bloud after three dayes. Or elſe this name belongs unto him from piercing the ſhel-fiſhes and picking out their meat to feed his young. For, according to the teſtimonie of *Ariſtotle*, the dammes uſe to catch ſuch fiſh and ſwallow them into their ſtomacks, and when they have there ſo warmed them that their ſhells may gape, they do again caſt them up; and ſo pick out their meat in an eaſie manner. In like ſort have I ſeen thoſe, who have done more by policie, then others or they could do by ſtrength; neither is violence alwayes the readieſt way: for

Policie is better then ſtrength.

ſometimes

ſometimes art may be more then arms, and gentle uſage have power to charm, when rigour helpeth to enrage.

The *Stork* is a famous bird for naturall love to his parents, whom he feedeth being old and feeble, as they fed him being young: the Egyptians and the Theſſalians ſo eſteemed this bird, that there was a great penaltie laid upon any that ſhould kill him. His Engliſh name *Stork* comes from στοργὴ in Greek, which is *Amor* in Latine; proceeding from his forenamed kindneſſe and naturall love to his damme; being alſo humane and loving to mankinde, delighting to build in the tops of houſes and chimneys, as is uſuall to be ſeen in Germanie; whereby it is evident, that he loveth the ſocietie of man: which (ſaith one) ſheweth their diſpoſition to be unnaturall, which do ſhun the companie of men, and of a ſuperſtitious minde, retire themſelves into deſert and ſolitarie places, as Hermites, Anchorites, and ſuch like. Dr *Wil.* on Levit.

The Stork.

Plin. lib. 10. *cap.* 23.

There ought to be ſocietie amongſt men.

And now the reaſon why he was in ſuch eſteem in Egypt and Theſſalie, was for his great ſervice he did them in killing of ſerpents, and other venemous things. *Plinie* calls him *Ciconia:* and from the Stork Ibis, men firſt learned to purge by clyſter; for with his bill he conveyeth ſalt water up into his bodie below, and ſo purgeth himſelf.

From whence men firſt learned to purge by clyſter.

The *Heron* or *Hernſew* is a fowl that liveth about waters, and yet ſhe doth ſo abhorre rain and tempeſts, that ſhe ſeeketh to avoid them by flying on high. She hath her neſt in very loftie trees, & ſheweth as it were a naturall hatred againſt the goſſehawk and other kinde of hawks: and ſo likewiſe doth the hawk ſeek her deſtruction continually. When they fight above in the aire, they labour both eſpecially for this one thing, that the one might aſcend and be above the other: Now if the hawk getteth the upper place, he overthroweth and vanquiſh-

The Heron

vanquiſheth the heron with a marvellous earneſt flight; but if the heron get above the hawk, then with his dung he defileth the hawk and ſo deſtroyeth him: for his dung is a poyſon to the hawk, rotting and putrifying his feathers.

This bird is *Avis furibunda, a furious bird*; and ſo in Latine ſhe is called *Ardea*, of *ardeo, to burn:* chiefly becauſe ſhe is an angrie creature, or becauſe ſhe is greatly enflamed with luſt; or elſe becauſe the dung of this bird doth as it were burn or conſume what it toucheth.

The Hawk. Of *Hawks* there be many and ſeverall kindes; as the *Falcon*, *Merlin*, *Lannar*, *Taſſell*, and ſundrie others. Howbeit the *Taſſells* are ſuppoſed to be the males of ſuch birds as live by prey: as the *Taſſell* of the *Saker* is called a *Hobbie*, or *Mongrell hawk*; that of the *Sparrow-hawk*, a *Musket*; that of the *Lannar*, a *Lannaret*; and ſo of the reſt. Now ſome again diſtinguiſh theſe birds, three ſeverall wayes. Firſt by the form and faſhion of their bodie; ſome being great, as the *Goſſehawk*, *Faulcon*, *Gerfaulcon*, &c. ſome ſmall, as the *Merlin*, *Musket*, *Sparrow-hawk*, *Hobbie*, and ſuch others. Secondly by their game, as ſome for the pheſant, ſome for the partridge, ſome for the hernſhaw, ſome for the duck and mallard, ſome for one thing and ſome for another. Thirdly they are ſaid to differ in the manner of their following the game; as ſuch know better then my ſelf, who uſe to keep and manage hawks.

And if hither I may bring other birds of prey, I would joyn to theſe the *Kite*, *Ringtail*, *Buzzard*, *Bittor*, and ſuch like.

Olaus Mag. lib. 19. *Olaus Magnus* makes mention of brave generous falcons in the more northern parts of the world, which live upon the ſpoil of fiſh, and build their neſts upon high mountains: and for all kindes of hawks generally, he

accounts

accounts them the beſt which are bred thereabouts: adding moreover that an hawk is fearfull of nothing more then a Peacock: and as for little infants, he ſaith that there is none, either bird or beaſt kept tame at home, which more deſireth to hurt them, then the Apes and biggeſt Hawks. So have I ſeen ſome maintain and cheriſh thoſe in their own families, perhaps at their own tables, who upon occaſion have proved the firſt to do them miſchief; nay, no occaſion but fit opportunitie is enough for ſuch: as *Brutus* conſpired the death of *Ceſar*. Or again, I have ſeen thoſe delight in that, which hath been the readieſt way to their houſes ruine.

Emblemes from the Ape and Hawk, concerning treacherie and ruine to a mans houſe.

The Partridge.

The delicate *Partridge* is a bird well known: ſhe bringeth forth young, which like chickens will runne as ſoon as they can creep out of the ſhell. They are ſuppoſed to live 16 yeares. They cover the ſhell of their egges with a ſoft duſt ſprinkled over them, and never lodge whereabouts they breed, being very laſcivious wanton birds; as *Plinie* tells us, *lib.* 10. *cap.* 33. And as Phyſicians write, the fleſh of this bird is admirably good and wholeſome, eſpecially for weak perſons: for it comforteth the ſtomack, makes them luſtie, and helps the memorie. Neither do I marvell (ſaith one) that gentlemen be at ſuch coſt to keep hawks, and take ſuch toil to kill Partridges and Pheſants: for beſides the paſtime and pleaſure in hawking, the fleſh of theſe birds is very pleaſant, and every morſel as good as gold.

Well may we wiſh that pleaſure to ſucceed,
Which brings to man ſuch treaſure in his need.

The Pheſant.

The *Pheſants* are ſaid to come firſt of all from about the river *Phaſis*, which is a famous river in *Colchos*; where they were found, and from whence they were brought by the *Argonauts*: * *Plinie* therefore calls them *Phaſianæ*; and we, *Pheſants*. This is a princely diſh: but the *Mallard* is nothing wholeſome; according to that of *Schola Salerni*,

* Lib. 10. cap. 48.

The Mallard.

Schol. Salern. tranſlated by Sir John Har.

> *Good ſport it is to ſee a Mallard kill'd,*
> *But with their fleſh your fleſh ſhould not be fill'd.*
> *The Capon, Hen, and Chicken, Partridge, Quail,*
> *The Heath-cock wholeſome is, the Dove, the Rail;*
> *The Pheſant, Woodcock, Lark, and Thruſh be good,*
> *And all that do not much delight in mud.*

The Nightingale.

But do you not heare ſweet *Philomel?* heark how ſhe playes the ſilent world aſleep. This is a bird much addicted to watching; for ſhe ſitteth all the night ſinging upon a bough, with the * ſharp end of a thorn againſt her breaſt to keep her waking. Her very throat is able to raviſh the dulleſt eare, and ſo much the more is her muſick beyond compare, in that from ſo ſmall a creature ſuch daintie aires are warbled forth. The Latines call her *Philomela*; that is, a bird *loving to ſing*: and what Stoick but would love to heare her, and give her thanks for her daintie dittie? Should man ſtrive to marrie his induſtrious layes with hers, he could not be ſo much rapt with his own as with her delicious notes: for ſure ſhe ſeems to have

* *Ælian. var. hiſt. lib.* 12.

Du Bart.

> *So many tunes, whoſe harmonie excells*
> *Our voice, our viols, and all muſick elſe.*

The Lark, Black-bird, Linot, Finch, Mavis, Redbreaſt, Wren, Thruſh, and Starling.

The prettie *Lark* chants with a ſugred throat, ſo doth the *Black-bird*, *Linot*, the ſeverall kindes of *Finches*, the mirthfull *Mavis*, *Red-breaſt*, *Wren*, *Thruſh*, and *Starling*.

> *But all is nothing to the Nightingale,*
> *Breathing ſo ſweetly from a breaſt ſo ſmall.*

The Owl.

The *Owl* is another night-bird; her cry is diſmall, and ſhe her ſelf rightly ſtiled *The hate and ſcorn of all the birds beſide.* And of Owls there be many kindes.

Bubo.

The great *Owl* in Greek is called βύας, of βοάω *clamo*, or from the dolefull noiſe which ſhe maketh: and ſo in Latine it is *Bubo*. This Owl keepeth in deſert places, is like in ſhape to another Owl, hath talons like the Eagle, and is very neare as great. He is thought to be an omi-

nous

nous bird, as he was to *Agrippa, Joſ. Antiq. lib.* 18. 1. which muſt be underſtood when he is ſeen in the day; as again in the Councell of *Conſtance* one appeared before Pope John the 22. And of all night-birds, thoſe are held to be the moſt diſmall, *Qui glutiunt vocem velut ſtrangulati*; that is, *which throtle out a kinde of croaking voice, like one that is ſtrangled, or ratleth in the throat.*

The Night-raven.

And of this ſound is that hoarſe bird which is commonly called the *Night-raven*, or *Night-crow*. This alſo is ſaid to be a kinde of owl, and (as authours witneſſe) will take mice like a cat, and many times catch and deſtroy moles. In Greek, ſome name him Ἐλεός; and ἐλελίζω is *clamo, to crie* or *make a noiſe*: but in Latine he is *Nycticorax*, from νὺξ *nox*, & κόραξ *corvus*; which in Engliſh is the *Night-crow*, or *Night-raven*. And as for his colour, it is black like other crows. See *Geſner de avibus, lib.* 3.

The Scriech-owl.

Again, there is another kinde named the *Scriech-owl*, which the Latines underſtand by the word *Strix*, and the Greeks by the word σύρνιον. Some (in old time) have fabled ſtrange things of this bird, namely that it ſucked out the bloud of infants lying in their cradles, and with the very eyes of it did effaſcinate children, or change their favours: whereupon ſome have uſed the ſame word for a witch, a fairie, or hagge.

Noctua.

But perhaps that which is moſt commonly called the *Scriech-owl*, is comprehended under one of the kindes of the *Noctua*: or elſe it may be another Scriech-owl. For there be 4 ſeverall *Noctua's*, as *Geſner* writeth. One is of a large bigneſſe, and hath feathers growing on her head like eares. A ſecond is leſſe; white on the throat and breaſt, ſpeckled on her other parts with a white and muddie colour. A third is alſo leſſe then the former, and ſpotted with white and aſh-colour. And a fourth is alſo leſſe then this, of the ſame colour, inhabiting moſt of all among rocks, and ſuch like places. The *Noctua* in La-

tine, in the Greek is called γλαὺξ, from the glaring, or colour of her eyes. And as for the Scriech-owl, ſhe is known by nothing better then her crie.

The Howlet. Alſo there is *Ulula*; and this is that which we call the *Howlet*, or the *Madge*. All the owls are ſolitarie birds, ſome dwelling in deſerts, ſome in churches and in ruinous buildings: and this delighteth to ſit ſleeping in a tree, uſing there likewiſe to build her neſt; frequenting barns and other ſuch like places for the love of mice, young birds, and little chickens. She is of a gray colour in the moſt of her bodie.

To make a drunkard lothe his liquour. Some ſay that the egges of an Owl broken and put into the cups of a drunkard, or one deſirous to follow drinking, will ſo work with him, that he will ſuddenly lothe his good liquour, and be diſpleaſed with drinking.

The Bat. The *Bat* may be next; becauſe ſhe uſeth to flie abroad in the twilight: called therefore *veſpertilio* in the Latine, and νυκτερὶς in Greek. It is a creature between a bird and a beaſt, for it hath a mouth, teeth, members of generation like a beaſt, bringeth forth young ones alive, laying no egges, &c. Onely it flies in the night, and hath wings like a bird. It is therefore called by ſome a *Flittermouſe*, and is no bird but a winged mouſe; for ſhe creeps with her wings, is without feathers, and flyeth with a kinde of skin, as bees and flies do; excepting that the Bats wing hath a farre thicker and ſtronger skin. And this creature thus mungrell-like, cannot (as you know) look very lovely.

The Cuckoe. But not to keep you longer amongſt theſe birds of night, for fear ſome one or other ſhould affright you, let us now go walk and heare the *Cuckoe* ſing. This is a bird ſo called by reaſon of his crie; and from thence comes the Greek κοκκὺξ, and the Latine *Cuculus*: for the noiſe which this bird maketh, and the ſong which ſhe ſingeth, is nothing but *Cuckoe*. This is her note; which note ſhe neither varieth nor changeth untill ſhe be wearing away. *Olaus*

Olaus Magnus calleth her the *Annunciatrix optatæ lætitiæ*; which is not in reſpect of her ſweet ſinging, but becauſe when ſhe cometh, then comes that cheerfull time of the yeare, the wiſhed and the welcome ſpring. Lib. 19.

She loſeth her voice commonly about the end of July, or ſomewhat before; faltring and doubling in her note when ſummer is wearing out. So have I ſeen thoſe who in time of proſperity have been very cheerfull, forward, and obſervant of others, attending them with fair words and great ſhews of love: but when times change, they alſo changed; ſhewing themſelves dull and backward, and yet ſhewing themſelves then no other then they were. For theſe be friends who will abide no winter, but falter now, even as they flattered before, never remembring their former words, how plain and fair ſoever they ſeemed; False friends.

Jura, fides, ubi nunc? commiſsáque dextera dextræ,
Quíque erat in falſo plurimus ore Deus?

Whereas a true friend indeed, is onely known in time of trouble. For it is a certain rule, *Amicorum idem affectus, Friends are alwayes like-affected*: according to that of the Poet;

Et flêſti, & noſtros vidiſti flentis ocellos: Ovid. Epiſt.
Miſcuimus lacrymas mœſtus uterque ſuas.

Thou diddeſt weep, and didſt my moiſt eyes ſee:
We mixed grief, and wept for thee and me.

Furthermore, this is a fowl hated of every other bird, becauſe ſhe ſpoileth their neſts and eats their egges.

Neither is ſhe very fruitfull; for one at a time is enough for her: neither is this one hatched but by ſome other of a differing kinde; for ſhe doth not build any neſt, but layeth her egge in the neſt of another, which hatcheth it up as her own. Nay it ſo falleth out, that the poore, ſillie, and deceived bird thus beguiled, neglects her nearer brood, as being better pleaſed with the beautie of the

Cuckoes young, untill at the laſt this ſtranger thus brought forth and being ready to fly, deſtroy his nurſe, and kill her for her kindeneſſe. So have I heard of ſome, no better rewarded for their good entertainment and watchfull care. For benefits received are little remembred: and where men ſometimes look for love, they are wickedly repayed with hate and harm.

Adulterous men like the Cuckoe.

Alſo there appeares from hence another embleme. For in the Cuckoe is deciphered the wicked practiſe of adulterous men, who are not aſhamed filthily to defile their neighbours bed: From whence we call them cuckolds, who ſuffer this wrong and yet are innocent; whereas indeed the luſtfull Goat that acteth all, and performs the villanie, is the very cuckold; and the other (poore honeſt man) wronged not onely in his bed, but in his name, is the harmleſſe patient of what he cannot help. Yet this I will ſay, that whileſt many make *Peacocks* of their wives, they do alſo make *Woodcocks* (although not *Cuckoes*) of themſelves: in which, whom they may thank, it is ſoon perceived; or whom they may blame, their folly telleth. For ſignes hanged forth are but the callers in of gueſts; and baits preſented allure fiſh: and as nothing ſooner invites the thief to cut a purſe then ſhew of money, ſo nothing ſooner occaſions an enticement to diſloyalty, then the gaudie veſtments of an immodeſt wife; as in this following Epigram may appeare,

A luſtie lad that paſt along Cheapſide,
Incontinent a gallant laſſe eſpi'd:
Whoſe tempting breaſts (as to the ſale laid out)
Invites: and thus this youngſter 'gins to flout.
Lady (quoth he) is this fleſh to be ſold?
No, Lord (quoth ſhe) for ſilver nor for gold:
But wherefore ask you? and there made a ſtop.
To buy (quoth he) if not, ſhut up your ſhop.

The Swallow.

The *Swallow* is a bird likewiſe which comes in the Spring,

Spring, and goeth away again before Winter. Some think that they repair into thoſe countreys where they may reſt upon the ſides of ſuch warm mountains as lie open to the heat of the ſhining ſunne; and that there they have been found naked, and without their feathers. *Plin.*

But *Olaus Magnus*, in the nineteenth book of his Northern Hiſtory, writeth otherwiſe; ſaying, *Although the writers of many naturall things have recorded that the Swallows change their ſtations, going, when winter cometh, into hotter countreys: yet in the northern waters, Fiſhermen often times by chance draw up in their nets an abundance of Swallows, hanging together in manner of a conglomerated maſſe.* Adding moreover, that in the beginning of Autumne they gather themſelves together among the canes or reeds; where, providing themſelves to ſink into the waters, they joyn bill to bill, wing to wing, and foot to foot. *For it is obſerved* (ſaith he) *that at that time having finiſhed their ſweet ſinging, they deſcend in ſuch a manner; and quietly again, after the beginning of the Spring, they fly out thence and repair their former neſts.*

This the ſaid authour affirmeth with much confidence; and doth likewiſe ſay, that ſome young men have taken this maſſe, and by heating of it, the Swallows have been again disjoyned, beginning to fly: but they lived not long, becauſe their time ſhould have been a great while more to bring them to perfection. This I confeſſe is ſtrange, but why may it not as * well be, as that of the *Barnacle* or *Brant-geeſe*; of which it is certain that they firſt grow on trees? See more of them in the third day.

* And ſo much the rather, becauſe they are ſeen in hotter countreys when they be gone from hence; neither can any one ſhew a cauſe for every thing in Nature.

Elian ſaith that the Swallow is a watchfull bird, and ſleepeth but by halves and fits (as we ſay) which is no ſound kinde of reſt. And again, her ſwiftneſſe in flying is commendable; and as for her diligence and dexteritie in building a neſt, it deſerveth praiſe: inſomuch that

that ſome have ſaid, *The Swallow taught men firſt to build. Plutarch de induſt. animal.*

Du Bart.

Flying ſhe ſings, and ſinging ſeeketh where
She'r houſe with cunning, not with coſt, may rear.
Her little beak ſhe loads with brittle ſtraws,
Her wings with water, and with earth her claws,
Whereof ſhe morter makes, and therewithall
Aptly ſhe builds her ſemicircle wall.

The Turtle

Next after the *Swallow*, I may come to the *Turtle*. It is a bird which ſingeth not, but hath a kinde of groning in ſtead of ſinging; true to her mate, of admired chaſtitie, lives long, is abſent from us in winter; and (as ſome think) being gone, ſhe loſeth her feathers; as *Plinie* likewiſe writeth of the Swallow.

Innocencie to be learned from the Dove.

She is alſo a very harmleſſe creature, and without gall. Which if man could frame himſelf to be, the ſerpents wiſdome would not hurt him, nor lean-fac'd envie ſojourn with him. But being more wiſe then innocent, he makes others grone more at his wrongs, and under his burdens, then he himſelf either doth or did for his own ſinnes.

The Pigeon.

Columbus, the *Dove* or *Pigeon*, may be next, becauſe it is neare of nature to the Turtle. Theſe fowls ſit upon their egges by courſe, and afterwards when they be changed from egges to young ones, the cock doth feed and foſter them. They commonly bring forth two at a brood, the one a cock, the other a hen; and have young about ten times in a yeare. But ſome which write of Egypt (ſaith *Ælianus*) declare that the Pigeons in that countrey breed twelve times in a yeare.

Neither doth the cock tread the hen, before he hath courteouſly ſaluted her with a kiſſe. For the hen will not have company with him, untill that firſt debt be duely paid. Some (who write of India) report that there be Pigeons in that countrey of a yellow colour. And as for

Stock-

Stock-doves, they differ from Pigeons, becauſe the Pigeon is ſomewhat bigger, and not altogether ſo wilde. But the Ring-dove is much greater then any of them, and is thought to live about thirtie or fourtie yeares.

Furthermore, Pigeons take great delight to ſit by the banks of waters and cryſtall ſtreams: which ſome think to be, in regard that (like women) they love to behold themſelves, as in a mirrour or glaſſe. And if nature hath taught them that piece of pride, it brings them no ſmall profit: for whileſt they thus ſit by the water ſide, they can ſoon perceive when the Hawk is coming towards them, becauſe his ſhadow or image will appeare in the water; and ſo being fore-warned, they cannot but be fore-armed, and prepared againſt ſuch miſchief as that devouring bird intendeth to them.

Theſe fowls be naturally very hot and moiſt, wherefore they be not good for thoſe that be cholerick or enclined to any fevers: but to them which be flegmatick and pure melancholy, they are very wholeſome, and be eaſily digeſted.

The Sparrow.

The *Sparrow* dieth quickly, is very laſcivious, and if it be a cock, lives not above a * yeare; if a hen, it hath a longer time. *Plin.*

* *Plinie* thinketh ſo: but I ſuppoſe, that although their time be ſhort, yet it may be more then a yeare.

They be of a very hot nature; and (as *Geminianus* writeth) will, without harm, ſometimes feed on the ſeeds of henbane. Their fleſh is hard to digeſt, they ſtirre up Venus, eſpecially the cock ſparrows. But being boiled in broth, they are reſtorative, and good for weak or aged perſons.

A ſtorie of a Sparrow.

Elian, in the 13 book of his variable hiſtorie, ſpeaking of *Xenocrates* how he was much enclined to pitie, tells a ſtory of a Sparrow which flew into his boſome. As this man (ſaith he) on a time was ſitting in a ſunnie place, a little chirping Sparrow purſued by an Hawk by whom ſhe was almoſt wearied to death, and fainting in flight,

fled into the boſo ne of *Xenocrates*; which when he ſaw, he entertained her with delight, and harboured her very tenderly till all dangers were paſt, and then he gave her free paſſage to flie whither ſhe would; uttering theſe words when he caſt her up into the aire, *Hoſti ſupplicem non prodidi, I have not given one craving ſuccour, into the hands of his enemie.* And (indeed) to help the helpleſſe, harbour the houſeleſſe, deliver the diſtreſſed, and defend the wronged, *ad aſtra uſque tollit*, nay *ſupra aſtra* rather; and is a divine practiſe worth recording, and not unworthy imitation.

The Peacock.

The *Peacock* is a bird well known, and much admired for his daintie coloured feathers, which, when he ſpreads them againſt the ſunne, have a curious luſtre, and look like gemmes. Howbeit his black feet make him aſhamed of his fair tail; and therefore when he ſeeth them (as angrie with nature, or grieved for that deformitie) he hangeth down his ſtarrie plumes, and walketh ſlowly in a diſcontented fit of ſolitarie ſadneſſe; like one deeply poſſeſt with dull melancholy: from whence it is ſaid, that he hath *a theeviſh pace, and a helliſh voice.*

An example of envie.
* *Geminian. lib. 4. cap. 43.*

Neither is he other then a perfect embleme of deep envie. For * ſome write that his dung is very medicinable and uſefull to man in many things; which he therefore ſtriveth to hide, and conceal: being indeed the right trick of deviliſh envie, which is beſt pleaſed when ſhe can but exclude the communication of ſuch things as would do good, if they might be had.

The fleſh of theſe fowls, if they be old, is hard of digeſtion; and ſo do phyſicians likewiſe write of the *Turkie-cocks*: but yet the chickens of either of them about half a yeare old, are good and wholeſome.

The Cock.

But I leave this bird, and come to the *Cock.* He it is who is a conſtant herald to the new-born day, and a

diligent watch to the ſilent night, altering in his note as the day approacheth: for in the deadeſt time he crows more deeply then when the night is wearing out; ſhewing thereby as it were the differing houres, and changing watches.

It is ſaid that the ſhrill voice of this commanding fowl, will keep in aw the grimme and fierce Lion: ſo *Plinie* writeth; but others have ſaid the contrarie, becauſe it hath been found that Lions have ſometimes ſtrangled Cocks and Hennes without fear: and yet perhaps this might be through the antipathie which is between them. For in this it is free for every one to think what he pleaſeth. The Cock daunteth the Lion.

Neither is it now any other then a common ſport to ſee ſuch creatures enter battell with their weaponed-wounding heels, and cruell pecking beaks. The originall of which (as * *Ælianus* writeth) was after this manner. Cock-fights. * *Var. hiſt. lib.* 2.

When the Athenians had vanquiſhed the Perſians in a battell, they made a law, that upon one day in every yeare, there ſhould, upon the open theater, be a Cock-fighting kept to be ſeen of all; that obſerving how they fought and endangered themſelves for nothing, others might learn not to be daunted when their countrey lay at the ſtake, but fight with courage unreſiſtable; becauſe they then fought for ſomething. To which purpoſe it is recorded, that when *Themiſtocles* was captain, and ſpectatour of ſuch a Cock-contention, he ſpake thus to his ſouldiers: *Theſe two Cocks* (ſaith he) *endanger themſelves, as we ſee, to the death, not for their countreys cauſe, not for the houſhold gods, not for the priviledges of their honourable anceſtours, not for renown, not for libertie, not for wife and children: but onely for this, that the one might not over-crow or beat the other. And therefore the hearts of the Athenians ought rather to be ſtored with ſtoutneſſe* A ſtorie concerning Cock-fighting. *Ibid.*

 and

and audacitie, that thereby they may purchaſe perpetuall remembrance.

Du Bart.

Cloſe by his ſide ſtands the couragious Cock,
Creſt-creatures king, the peaſants truſtie clock,
True morning-watch, Aurora's trumpeter,
The lions terrour, true Aſtronomer,
Who leaves his bed when Sol begins to riſe,
And when ſunne ſets, then to his rooſt he flies.

The Crane

The *Crane* is ſaid to be a ſhifting bird: it hath high legges, a long beak and neck; which finding no food in winter in the northern regions, by reaſon of the great cold, retire themſelves into more temperate countreys, and in ſummer return to the north again.

They flie by companies, feed together, love their own kinde, and appoint one to be king over them: and if at any time they fight among themſelves, preſently they be again reconciled, and keep their ſocietie as before. They have a watch, and watch by courſe; there being in the claw of that Crane whoſe turn it is to wake, a little ſtone, that ſo if by chance this watching bird ſhould fall aſleep, the ſtone falling down might again awake him. *Gemin. ex Ariſtot.*

Moreover it is ſaid, that when they do alight upon the ground, their king is firſt, and he alſo firſt raiſeth himſelf from the earth and looketh round about him, to ſee whether any one be coming, that thereby giving warning, they might defend themſelves. Which is (indeed) a fit embleme of carefull paſtours, good magiſtrates, and honeſt governours, whoſe part it is to be at all times vigilant for the good of thoſe over whom they are. Nay, their captain and their watching, doth not onely ſhew the care which ought to be in governours, but alſo the neceſſitie of government is deciphered by it.

Care ought to be in Paſtours, Magiſtrates, and Governours; taught by an example from the Crane.

And again it is reported, that when theſe birds flie out of *Cilicia*, over the mountains *Taurus*, each of them carrieth

rieth in his mouth a pebleſtone, leſt by their chattering they ſhould be ſeized upon by the Eagles. So have I ſeen thoſe whoſe unbridled tongues have but brought them to miſchief, and rouzed the Eagles about their eares: whereas *in little medling is much reſt*; and *nothing ſaid is ſoon amended.* The wiſe man therefore will wear diſcretion as a ſtone upon the tip of his tongue, leſt chattering ſuch words as he knows not what, he meet with that which he looks not for.

The tongue hath brought many to miſchief.

And now I could ſpeak of the warres which the Cranes have againſt the Pigmies, whom *Du Bartas* calleth *Dwarfs of the North:* but I had rather referre you concerning this to *Plinie*, in the ſecond chapter of his ſeventh book. Phyſicians tell us that the Crane is hard of digeſtion, and maketh ill juice; but being hanged up a day or two before he be eaten, he is the more tender, and leſſe unwholeſome.

The Swan.

The ſilver *Swan* is a white bird, living in marſhes and calm rivers; very loving unto his fellow, the male to the female, whom when he draweth to him, with his long neck he doth as it were embrace her: wherefore in greek he is called κύκνος, of κύειν, *to embrace* or *kiſſe*; whence alſo is derived the Latine *Cygnus*. They do one defend the other, and ſit upon their neſt by turns, and equally have care of their young ones when they be hatched: neither can the he-Swan endure that the ſhe ſhould companie with another; in which they be a perfect pattern of chaſte, mutuall, and matrimoniall love. Howbeit they will ſometimes fight very fiercely with their own kinde: and againſt the Eagles they have cruell battells, ſtriving not ſo much to obtain rule, as to revenge their injuries.

A pattern of matrimoniall love.

It is likewiſe ſaid that they ſometimes ſing, but never more ſweetly then when they be dying and exchanging life for death: of which ſome doubt, and approve it as a thing onely ſpoken in a poeticall manner; yet *Ariſtotle* is

is againſt them, affirming that many have heard them ſing in the Aſſyrian ſea. To which purpoſe, *Martial* hath this epigram,

Dulcia defectâ modulatur carmina linguâ
Cantator cygnus funeris ipſe ſui.

Sweet ſtrains he chaunteth out with's dying tongue,
And is the ſinger of his fun'rall ſong.

Death ought to be cheerfull.

Wherein he is a perfect embleme and pattern to us, that our death ought to be cheerfull, and life not ſo deare unto us as it is. And from hence came the proverb, *Cygnea cantio*, which is but *a lightning againſt death.*

The Sea-crow.

I formerly made mention of the *Raven:* but beſide the Raven there deſcribed, there is alſo a *Sea-raven* or *Sea-crow*, which is a bird very black unleſſe it be on the breaſt and bellie, upon which they be of an aſh-colour. They hunt after fiſh, and have toothed bills like unto the reapers ſickle, with which they can hold even an eele, as ſlipperie as it is. The dung of this bird is of an evil nature: for it will rot both the boughs and barks of ſuch trees as it falleth upon; and ſo it is alſo ſaid that the dung of the Heron doth. *Olaus, lib.* 19.

The ſaid authour ſpeaketh of another Sea-crow, which in ſeven dayes builds her neſt, and in the next ſeven layes her egges and brings forth young: and of another which he calleth *Morfex*, or *Humuſculus*, ſo called becauſe ſhe muſt beat the water with her tail before ſhe can flie. She is black all over, and with the reſidue of her companie uſeth to build her neſt upon the tops of high trees, growing neare to ſuch places where be ſtore of fiſh, which they catch and devoure very greedily: and of theſe birds there be great ſtore in the more Northern parts of the world. But they have eſpecially two enemies: the one is a bird which *Olaus* calleth *Platea*; the other is a fiſh which is called *Raia.*

A bird called Platea.

The

The *Platea* lies in wait for theſe crows, and flies at them when they have gotten their prey, and never leaves biting them upon their heads, untill ſhe cauſe them to leave it. This bird uſeth to ſwallow down an abundance of whole cockles into her bellie, and there having warmed them, ſhe caſts them up, and then their ſhels gaping like unto the roſted oiſter, give her leave to take out their meat and eat it: which ſheweth (as I ſaid once before, in the deſcription of another bird) that policie is better then ſtrength, and in the hardeſt matters prevaileth beſt.

Policie is better then ſtrength.

The other enemie is not a bird, but that fiſh which we call the *Ray*. For whileſt the devouring Crows be diving under water to catch their prey, they themſelves are caught by this fiſh and devoured ſuddenly, leſt otherwiſe they might want a revenger of their rapacitie even where and whileſt they do the wrong. Howbeit this *Ray* is a loving fiſh to man: for ſwimming in the waters, and being greedily purſued by the devouring Sea-dogs, the *Ray* defends him, and will not leave him untill he be out of danger.

The Ray kills the Sea-crows.

There be alſo an abundance of other birds in thoſe parts of ſtrange properties, and names ſcarce known: of which, they who have a deſire, may reade more in *Olaus Magnus*, the nineteenth book of his Northern hiſtorie.

The *Plover* is *Avis pluvialis*, and a fowl well known: howbeit ſome have thought that they live onely by the winde, and eat nothing at all; but they deceive themſelves in this opinion, as experience teacheth. For they have not onely been ſeen to feed, but taken alſo with meat in their crops. And that which firſt occaſioned this errour, was their quick digeſtion; for they commonly eat things that are eaſily digeſted, and ſoon conſumed. *Plover*, * ſaith one, is thought to be a daintie diſh and right wholeſome, yet it is ſlow of digeſtion, nouriſheth little,

The Plover.

* See the haven of health, pag. 134.

little, and encreaſeth melancholie. The like he affirmeth of the *Lapwing:* but the *Teal* he yeeldeth to be ſomewhat better.

Moreover, the Plover flying high doth ſignifie rain: which bird *Olaus* deſcribeth after this manner: There is, ſaith he, a bird which we call *Avis Pluvialis*, about the bigneſſe of a Partridge, ſuppoſed to live by nothing but aire, becauſe her bellie uſeth to be emptie of meat, and yet ſhe is very fat: her feathers are diverſly coloured, ſome with white, ſome with black, and ſome with ſaffron colour: and this bird the fowlers thus hunt; by throwing up into the aire ſhort heavie clubs: for by ſo doing they cauſe her to deſcend, and being deſcended, they catch her in their nets, laid readie for the ſame purpoſe.

The Lapwing.

Upupa or the *Lapwing* is a baſtard-plover. This is a querulous bird, flying up and down lapping and clapping with her wings; from whence ſhe is called a *Lapwing*: and in Latine ſhe is named *Upupa*, from *pu*, *pu*, which is the crie that ſhe maketh; thereby ſecuring her neſt and young ones from our finding. For by this practiſe ſhe will draw us away from them as farre as ſhe can. The combe or creſt upon her head, gave *Ovid* a fit occaſion to feigne a tale of a * king turned into a Lapwing, whoſe crown doth yet appeare upon the head of this bird.

* *Tereus rex Thracum. Meta. lib.* 6.

The Lapwings fight often with the Swallows, Jackdaws, and Pies, and by their much crying do ſignifie rain. And as for their young, being as it were half hatched, they will runne from their neſts with the ſhells on their heads.

The Oſprey.

The *Oſprey* is a ravenous bird which hovereth over pools to take fiſh; having one claw foot, and another flat.

The Charadrion.

Galgulus-Icterus or the *Charadrion*, is a bird unto which

which ſome aſcribe this ſtrange property, *viz.* that if any who hath the Jaundiſe look upon him, and the bird on him, the bird then taketh the diſeaſe and dieth, but the man is cured, made ſound, and liveth. Such are we, by nature ſick unto death, but by Chriſt (who died for our ſinnes and roſe again for our juſtification) we are cured, made ſound, and live.

An embleme from the cure done by this bird, concerning our cure wrought by Chriſt.

Porphyrio.

Porphyrio is a bird drinking as though he did bite the water; his bill and legs are red and long.

The King-fiſher.

Halcyon or the *King-fiſher* is a bird which maketh her neſt in winter upon the ſea, during which time there is a calm and quiet ſeaſon: whereupon we call thoſe dayes *Halcyon dayes*, wherein we have peace, reſt, and quietneſſe. They live alſo about rivers, lay five egges, and (as **Plinie* witneſſeth) are ſeven dayes in preparing their neſts, and in the other ſeven they bring forth their young.

* *Lib.* 10. *cap.* 38.

The Poets have a fiction of *Alcyone* and *Ceyx*, who were turned into theſe birds: For when *Alcyone* heard that her husband *Ceyx* was drowned in his way home from a certain voyage, ſhe caſt her ſelf into the ſea, and then for the pitie which the gods had of them, they were both transformed into *Halcyons*. But without any fiction, this we are ſure of, that it is a ſtrange bird, and as it were natures deareſt darling; ſeeing that in favour of her neſts and young, the waters leave their raging, the windes their blowing, tempeſts have forgot to riſe, and dayes appeare with quiet calms.

Ovid. Met. lib. 11.

Du Bart.

The Pirate (dwelling alwayes in his bark)
Her building dayes deſiredly doth mark:
And the rich merchant reſolutely venters,
So ſoon as th' Halcyon in her brood-bed enters.
For ſo long as her quiet couch ſhe keeps,
*The * boyling ſea exceeding calmly ſleeps.*

*He names onely the Sicilian ſea.

This is a bird which feedeth upon fiſh, and by diving

after them, catcheth them; as is not ſeldome ſeen.

Bermuda birds. In the Summer iſlands, amongſt other things, we heare of varietie of fowls. For upon the diſcovery of thoſe parts by S^r. *George Summers*, and S^r. *Thomas Gates*, an abundance of fowl were taken. They took a thouſand of one ſort in two or three houres, being as big as a Pigeon, and laying ſpeckled egges upon the ſand, as big as hennes egges; which they would daily come and lay, although men ſat down amongſt them. *Purch.*

There alſo is another fowl that liveth in holes like cony-holes; their egges like to hen-egges, both in quantitie and qualitie. And other birds were there found ſo tame and gentle, that whiſtling to them, they would come and gaze on you, while with your ſtick you might kill them. *Idem.*

Birds of Paradiſe. But in Aſia, in one of the *Molucco* iſlands named *Tidore*, is a ſtrange bird which they call *Mamucos*, or *birds of Paradiſe:* they have leſſe fleſh then the bodie maketh ſhew of; their legs be in length about an hand-breadth, their head ſmall, their bill long, their feathers fair & of a ſingular beauteous colour: Authours write that they have no wings, neither do they fly, but are born up in the aire by the ſubtiltie of their plumes, & lightneſſe of their bodies. They are never ſeen (ſaith my authour) upon the ground but dead, neither do they corrupt or rot in any ſort. There is no man knoweth from whence they iſſue, neither where they breed up their young ones, nor whereupon they nouriſh themſelves. The iſlanders beleeve that they make their neſts in Paradiſe, and tell many fables thereupon: which perſwaſion the Moores firſt put into their heads. They call them *Manucodiata*, or *holy birds*, and have them in religious account; inſomuch that ſome of them have beleeved that ſouls are immortall, by the conſideration of ſuch a bird. And as for the ſuſtenance which keeps this fowl alive, although it be

hard to ſay upon what it is maintained; I do eaſily think that we may liſten to them, who ſuppoſe that they nouriſh themſelves, and maintain their lives by the dew that falleth, and the flowers of the ſpices. See *Geſner de Avibus, lib.* 3.

Some have written that it is a bird without legs: but Mr. *Purchas* in two ſeverall places alledgeth the teſtimonie of one * *Pigafetta*, who witneſſeth that it is a bird having two feet as well as other birds; but as ſoon as they be taken, they are cut off, with a great part of their body, whereof a little is left with the head and neck, which being hardened and dryed in the ſunne, ſeem to be ſo bred. And other authours witneſſe that there was one of them ſold to the Emperour in the yeare 1605, which had legs on it.

* Who alſo writeth that he ſaw a tree in the Eaſt-Indies, the leaves of which changed themſelves into birds, who lived but 8 houres. *Du Bart. Sum.* And of birds in the Moluccos as big as hens, with horns in ſtead of creſts: They lay their egges in the ſand, and there they be hatched.

Cardan likewiſe mentions this bird; but ſeeing his report is differing from our modern writers and travellers, I forbear to rehearſe it: Howbeit they who reade *Geſner* ſhall ſee it in his third book of birds, together with a figure of this fowl.

The Cucuios.

But out of Aſia look yet once again into America: and then you ſhall ſee as ſtrange a winged creature, as any we have heard of yet; I mean the New Spains *Cucuios*, which whether I may call it bird, or beetle, I cannot tell. He is very little, and of the thickneſſe of a mans thumbe, or thereabouts; but amongſt the works of God, he is a moſt admirable wonder. For he carrieth foure lights with him, which * ſhine in the night; two in the ſeat of his eyes, and two which he ſheweth when he openeth his wings. And as for his wings, he hath two very ſtrong and hard, under which he hath two other little wings very thin, which appeare not but when he extendeth his other to fly. The Indians uſe them in ſtead of candles; and (ſaith my * authour) if a man tie five or ſix of them together, they yeeld as much light as a torch.

* Like unto which are thoſe birds mentioned by Plinie and Solinus, *Plin. lib.* 10. *cap* 47.

* See Purch. and Du Bart. ſummary, pag. 240.

Bees.

And loe, juſt now, as if it were by the light of this creature, me thinks I ſee the painfull and induſtrious *Bees* fly flocking to their hives.

Theſe be thoſe winged workmen, which whether their profit or admiration be greater, I am ſcarce able to ſay. For they do not onely buſily beſtirre themſelves to gather hony, which is very uſefull in the life of man; but they do work it up in moſt ſtrange manner, and keep it in their waxen cells ſo rarely built, that all the men which the world affords are not able to do the like. Neither is this all; for they live ſo, as they may be true patterns of needfull government, keeping themſelves under the ſubjection of a king, and order of laws. They may well be likewiſe ſaid to have the ſoveraignty and preeminence above all others of this kinde, becauſe the reſt come farre ſhort of their perfections.

It is a creature having foure wings, and bloudleſſe, the onely crafts-maſter of hony. Their eyes are ſomewhat of a horny ſubſtance, hid deep in their bodies, as is alſo their ſting; which when they loſe they die:

——*Vitam in vulnere ponunt*;

becauſe their ſting and entrails come away together. They want neither tongue nor teeth; and out of their ſhort feet or ſtumps, there grow forth as it were two fingers, wherein they carry a little ſtone, for the poyſing their bodies in ſtormy, windie, tempeſtuous weather; it being a great means to keep them from blowing away and loſing their home.

Neither can it be denied, but that by nature they are much different: for ſome (ſaith* one) are more domeſticall and tame, and others again are altogether wilde, uplandiſh and agreſtiall. Thoſe former are much delighted with the familiar friendſhip, cuſtome, & company of men; but the other can in no wiſe brook or endure them, & therefore they keep their trade of hony-making in old trees, caves, and ſuch like other holes.

* *Topſel* in his Hiſt. of Serpents.

As

As for their breathing, I do not beleeve it; howbeit they may pant, move, or ſtirre (as the heart or brain doth) and by tranſpiration be comforted and made lively: for they be much refreſhed by the aire which paſſeth through their divided places, inſomuch that they alwayes uſe great diligence and care to preſerve them from being ſtopped: for as ſoon as they be ſtopped in thoſe paſſages, they die; as we ſee if at any time they chance to fall into oyl, or the like liquour which may ſtop their pores.

Some make three kings amongſt them, differing in colour, as black, red, and divers-coloured; but perhaps there is rather one king in a companie, the other like kings may be eſteemed as viceroyes. In their breeding they actually couple together, after which they lay egs, ſitting upon them for the ſpace of five and fourtie dayes; then do they hatch their young ones, which at the firſt come forth much like to white worms, except the king, who onely is ſaid to be hatched with wings. And ſometimes there is a kinde of Bee bred out of putrefaction, as authours write. A rotten horſe breedeth Waſps; a dead calf Bees, if the Weſt winde blow; from an aſſe proceed Humble-bees; of a mule, Hornets, &c. And whether the Bees, in Sampſons dead Lion, were bred any where elſe, no man knoweth.

They have a Commonweal, and are governed by a king, as before was mentioned: and him they reverence and honour, being alwayes readie to do according to his pleaſure. He is of bodie farre bigger then the hony Bees, hath ſhorter wings, but a brighter and more goodly head then they. There is alwayes excellent diſcipline, and very good government among them: for at the mouthes of the hives there be ſome which ſtand like warders placed at the gates of a caſtle, to ſee who goes in and out. And having reſted quietly all night, there is one

one which with a humming noiſe doth call them up, whereupon they prepare to fly abroad about their buſineſſe: but if they make no haſte to look out, or go not farre from home, it is a certain ſigne of no good weather. When they be buſie at their work, the Bees which go abroad return home with laden thighs, full of the ſubſtance of the flowers; and this eſpecially is ſaid to be an office of the younger Bees: for ſome of the other do onely carrie water; and the elder ones remaining at home, do buſily lay up, carefully diſpoſe, and curiouſly dreſſe what the other bring in. Such as be ſluggiſh among them, are diligently obſerved, and bitterly puniſhed: and as for the drones, they are ſuppoſed by ſome to be the female Bees, which they drive out of their hives when breeding time is paſt; and therefore they do ill who uſe to kill the drones before. Others again think that the female Bee is no drone, but rather bred among the Bees, and being idle, and unapt for work, is driven away either in the buſieſt time, or time of dearth. And yet perhaps it may be the female, which having done as much as can be naturally required from her, muſt not think much to be driven away, but leave her room to a ſucceding generation.

I ſaid before, that in the morning there is one among them which calls them up, and ſo in like manner at night they leave their buzzing by degrees, at laſt hearing as it were a proclamation through their hive to go to reſt: and ſo the watch being appointed, and all things ſet in order, they all make themſelves readie to go to bed. So long as the king liveth, ſo long the whole ſwarm enjoyeth the benefit of peace; but he being dead, there is great diſorder. The king keepeth his court by himſelf, in the higheſt room and largeſt part of the whole palace, his lodging being very curiouſly made. And if at any time any of them chance to die, they be carried out of the

hive,

hive, as it were upon the ſhoulders of the other Bees, who will ſuffer nothing in their houſes which may pollute them: but if they be onely ſick, then have they a medicinall aliment of hony, drawn from anniſe, ſaffron, and Hyacinths, by which they are cured. *Topſell.*

And when they be readie to ſwarm, they dare not take their flight untill their king leade the way; unto whoſe ſide they ſtrive to flie, as neare as they can. Some ſay, if their king be ſuch as tenders the good of the other Bees, he goes but ſeldome abroad: and ſtragling often from home, they will rid themſelves of him. But when he dies through age, they carrie him forth in ſolemne manner, and behave themſelves as at ſome ſad funerall. Neither is he ſo tied to his home but that he may ſometimes go abroad to refreſh his aged bodie, whom they accompanie in a ſweet obedientiall manner; and if it chance that he grow wearie and faint by the way, they bear him back again upon their wings, and with great commiſeration pitie his decayed eſtate. Moreover they will not ſuffer a dead Bee to be in their hives, but carrie him forth as to his buriall, leſt he ſhould corrupt their pure and cleanly decked dwellings. *Topſ. hiſt. Serp.*

Veſpa, the *Waſp*, is an angrie creature: they make them neſts moſt * commonly in the ground; their combes be round, much after the faſhion of a broad toadſtool; and their cells are diverſly faſhioned. They be very tenderly affected to their females when they are with young, and will not ſuffer them to take any pains, but lay the whole burden upon themſelves. Like unto the Bees, they affect a kingly government; and in caſe they have no leader, they make their neſts in holes of clay, walls, and the like; where they live like vagabonds and gather nothing. They do often times rob the Bees, and (as I ſaid) be very angrie creatures, implacable, and very noxious to thoſe who diſturb their neſts. *Ariſto-*

Waſps.

* But ſometimes in thatched houſes.

phanes calleth all thoſe maids which are fine, ſlender, and prettie ſmall in the waſte, σφηκωδεῖς, reſembling them to Waſps; which by *Topſell* is interpreted, as if he ſhould name them *Waſp-waſted-wenches:* the reaſon whereof is, becauſe the bodie of a Waſp ſeemeth to be faſtened together to the midſt of the breaſt, with a certain thinne fine thread as it were; and to be as if they had no loins at all. And as your fineſt bodied wenches are like them in their waſte, ſo ſometimes too like them in their ſting; by which their beſt beautie is eclipſed: and better were it to endure the continuall droppings and thunderings of a rainie day, then the waſpiſh harms of wicked women, whether it be that they carrie their ſtings either in tongue or tail.

Hornets.

The *Hornet* is called by the Grecians ἀνθρήνη, becauſe with their ſting they raiſe an *Anthrax* or carbuncle, with a vehement inflammation of the whole part about it: & in Latine it is called *Crabro.* Theſe creatures do not gather their meat from flowers, but for the moſt part they live upon fleſh and ſtinking carrion, which makes them delight ſo much in dunghills. They uſe likewiſe to catch flies, and hunt after ſmall birds, which if they can but ſting, they kill. Mr *Topſell* makes mention of a ſtrange combate between an Hornet and a Sparrow, which he himſelf ſaw, at a town called *Duckworth* in *Huntingtonſhire*; and the Sparrow loſt the day: for being wounded by the Hornets ſting, the bird fell to the ground, and the Hornet greedily ſucked her bloud. The ſaid authour writeth that their life is but ſhort, never above two yeares: and as for their combes, they be wrought with greater cunning, more exquiſite art, and curious conceit, then thoſe either of Waſps or Bees; neither need we doubt (ſaith he) but that they bring forth young by the ſides of their cells, and perform ſuch other offices in their breeding as the Bees and Waſps do.

A fight between a Sparrow and a Hornet.

The

The *Gray* or *Badger* is their greateſt enemie; for in the full of the moon he uſeth to make forcible entrance into their holes, and without fear he is able to ſpoil their neſts. And albeit they moſt commonly feed upon fleſh, yet they do greatly love all kinde of ſweet things, and oyl, with other matter of a greaſie ſubſtance.

The Badger an enemie to the Hornet.

And for to make a medicine againſt the ſting of bees, hornets, or waſps, do thus. Take of opium, of the ſeed of henbane and camphire, of each a like quantitie, and incorporate them with roſe-water or juice of willows, and lay it upon the wounded place, applying on the top of it a linen cloth, which muſt be firſt throughly wetted in wine, and this is good to aſſwage the pain. Vineger and camphire are alſo excellent to waſh any ſuch place.

A good medicine againſt ſtinging.

Cantharides are flies whoſe juice is poiſon: they ſhine like gold, and muſt be carefully uſed in any experiment, otherwiſe they do much harm; as the unskilfull and adventurous have ſometimes proved to their own coſt.

Cantharides.

Pyrauſta is a flie ſo called from πῦρ *ignis*; becauſe it lives in the fire, and dieth without it. *Plin. lib.* 11. *cap.* 36.

Pyrauſta.

Tarantula is a little flie, frequent in Italie: it will many times ſting the people, whereupon they preſently fall a laughing; and if muſick be not forthwith brought them, they cannot chooſe but in a mortall merrie fit take leave of the world and † die. Neither can they at all be cured, unleſſe by hearing muſick: and (as it is reported) if the cure be not throughly done, they dance ever after at the ſound of muſicks pleaſing ſtrains: ſhewing thereby, that this is a creature, an admired creature, and of a ſtrange propertie.

Tarantula.

† Like unto which is an herb in Sardinia, of which if any eat much, they periſh and die laughing. It is like to Balm gentle. *Mouf.*

Bombyx is commonly called the *Silk-worm*: but whether I may name it a worm or a flie, I cannot tell. For ſometimes it is a worm, ſometimes a flie, and ſometimes neither worm nor flie, but a little ſeed, which the dying flies leave behinde them.

Bombyx.

As for example; when theſe daintie creatures have made them little husken houſes, and ſpunne out the juſt length of their ſilken webs, they eat out themſelves from thoſe priſons; and (although they were worms before) yet then they appeare with their prettie wings, and flie about a while: in which ſpace the male accompanying with the female, doth as it were tread her; and then, laying ſome certain egges, like little ſeeds, they ceaſe to live any longer: from which ſeeds proceed more young ones (at the firſt like maggots) and they do as their dammes before them, and then die.

And let this creature end my diſcourſe concerning the things done in this fifth day; wherein, not able to mention all, I have toucht at ſome; and thoſe ſo excellent, as I could have ſpent more time in their better view, were it not that the ſucceeding day haſtens his dawning. In the phraſe of Moſes I will therefore conclude, and concluding ſay,

The Eve and Morn confine the fifth of dayes,
And God gives to his work deſerved praiſe.

CHAP.

CHAP. IX.

This ninth chapter concerneth the creatures made in the ſixth and laſt day; namely creatures living neither in the aire, nor water, but upon the earth: and theſe be of two ſorts, the brute beaſts, and Man.

This chapter hath two Sections.

Sect. 1.

Wherein is both a diviſion and entrance into this dayes work; as alſo a diſcourſe of the firſt part of it, concerning the brute beaſts, whoſe creation was in the firſt part of the day.

THe juſt period of the fifth day being come to an end, the ſixth approacheth; wherein God Almightie ſhutteth up the creation of every *ſpecies:* and after all, he reſteth from his works, & watcheth by his providence over each part and parcell of the world which he had made.

And in this day he firſt produced the brute beaſts living upon the face of the earth: then he comes to the creation of man, and makes him the *Colophon,* or concluſion of all things elſe; in whoſe nature he placed the greateſt dignitie of any creature that is viſible: for man

is of a middle between the beaſts and Angels, tranſcending the one, and yet not worthy to equalize the other; as afterwards, when I come to that particular, ſhall be declared, with other things pertinent to his creation.

And now, that the terreſtriall beaſts and he ſhould be made both in one day, is worth obſerving: for had he been to live in the aire, he might have ſeen the ſunne with the flying fowls, and have been created when they were made: or had his habitation been in the waters, the fiſh and he might both at once have been produced. But being made, neither to ſwimme with the fiſhes, nor flie with the birds, but live upon the earth, it was moſt harmonious that the terreſtriall beaſts, and his creation, ſhould in the ſame day the one ſucceed the other. And that the end might ſhew the perfection of the work, the prioritie of time is given to the beaſts; but the excellencie and prioritie of all appeares in man, who was made *Lord of the creatures*, and in whom God had placed a ſurpaſſing condition, and (by farre) a more noble nature. For whereas they are led by ſenſe, he hath reaſon; whereas they look downwards and groveling from the skie, his countenance is erect, and his looks are mixt with majeſtie; whereas they are animate without an immortall ſoul, he liveth when he dieth, and hath a ſoul which death it ſelf knows not how to kill: and whereas their bodies fall and never riſe again, his riſeth when it is fallen, and is like ſeed ſown, which ſprouteth up when the time is come.

The creation of beaſts.

If this then be both the order and cauſe of ſuch an order in this dayes work, I muſt leave the moſt excellent piece untill the laſt, and begin firſt to look and obſerve how the beaſts, in their ſeverall kindes and daintie ſquadrons, march up and down, and walk from out the ſhop of their Creatour; being brought to perfection even as ſoon as that powerfull word who ſpoke it, did onely ſay it, *Let them be.*

It

It would (I confeſſe) require no ſmall volume to diſcourſe of all. Howbeit even in a few, the glory of their Maker will well appeare: and with that thought let us name ſome, by which we may admire the reſt.

The Elephant.

And firſt conſider what a ſtrong vaſt creature the mighty *Elephant* is known to be. There is no creature (ſaith [a] one) among all the beaſts of the world which hath ſo great and ample demonſtration of the power and wiſdome of Almighty God, as the *Elephant*; both for proportion of body, and diſpoſition of ſpirit: and it is admirable to behold the induſtrie of our ancient forefathers, and noble deſire to benefit us their poſteritie, by ſearching into the qualities of every beaſt, to diſcover what benefits or harms may come by them to mankinde: having never been afraid of the wildeſt, but they tamed them; and the greateſt, but they alſo ſet upon them: witneſſe this beaſt of which we now ſpeak, being like a living mountain in quantitie and outward appearance, yet by them ſo handled, as no little dog could be made more ſerviceable, tame, or tractable.

They are uſually bred in the [b] hot eaſtern countreys; for by reaſon they cannot well endure the cold, they delight moſt in the Eaſt and South; as in India, and ſome places of Africa. And before the dayes of *Alexander Magnus*, there were never any in Europe: but when he fought againſt [c] *Porus* King of India, he became maſter of many: and how bravely they fought at the firſt for their maſters, and received many wounds, *Curtius* hath related.

Theſe Indian *Elephants* are moſt commonly [d] nine cubits high, and five cubits broad; and in Africa they be about eleven foot high, and of bigneſſe proportionable to their height.

Their colour is for the moſt part mouſe-coloured, or black; and yet there was * once one in Ethiopia, all white, as

a *Topſel.*

b *Plin. lib.* 8. *cap.* 11

c *Curt. lib.* 8.

d *Topſel.*

* And in *Pegu* the King hath many; it being part of his royall title, *King of the White Elephants.* See Mr. *Purch.* in his Pilgr. of Aſia, *lib.* 5.

as Mr. *Topſell* relateth. They have a ſkinne ſo hard (excepting on their belly) that it is a very hard matter, and in a manner impoſſible, to pierce it with any ſword, ſpear, or iron. It hath on it very few hairs, and is very full of chaps or creviſes, in which there is ſuch a ſavour as invites the flies to a continuall feaſt: howbeit they pay deerly for their cheer; for although the *Elephant* cannot make uſe of his tail to drive them away, yet by ſhrinking of himſelf cloſe together, he incloſeth the flies within the chaps, and ſo killeth them. He hath a long trunked noſe, mighty teeth, foure whereof be within his mouth ſerving to grinde his meat, and two hang forth; as afterwards ſhall be ſhewed. He hath a tail ſlender and ſhort, and legs of an infinite ſtrength; his head is very great, ſo that a mans head may as eaſily be thruſt into it, as his finger into the mouth of a dog: but yet his eares and eyes are not equivalent to the reſidue of his other parts: for his eares are ſmall, and their matter like to the wings of a Bat or Dragon; and ſome (bred in ſome places) have no eares at all. Their eyes likewiſe are like the eyes of ſwine, but very red. Two of their teeth (as I ſaid) grow farre out of their mouthes, one of which they alwayes keep ſharp to revenge injuries and defend themſelves, and the other is leſſe ſharp, being often uſed to root up plants and trees for their meat; and commonly they grow out to the length of ten feet: this is that which we call Ivory, and of which many prettie things are cut by artiſts.

Munſter reporteth how theſe beaſts are taken; namely, by the cunning cutting down of a tree, againſt which they uſe to lean and ſtay themſelves. For this beaſt, [e] ſaith he, having fed till he is full, betaketh himſelf to reſt, and leaning to a tree he ſleepeth, for he cannot bend his joynts as other beaſts do; not becauſe he wanteth joynts, but

[e] *Munſt.* coſmog.

but becauſe his ſinews are more ſtrong, and cloſely knit his joynts together; or elſe becauſe there is much fleſh between the skinne and bones; or becauſe his skinne is ſo cruſtie, like to armour, and unfit to bend. Now when the people perceive any ſuch tree as is worn and made foul by the *Elephants* leaning againſt it, they come in the abſence of the ſaid beaſt, and cut it almoſt quite through, cloſe by the ground; inſomuch that being ready to fall, it cannot ſtand when the *Elephant* cometh to reſt againſt it, but by giving way cauſeth him to fall together with it; and then he lieth helpleſſe upon the ground all the night with his belly upward, and not being able to bend his legs and ariſe, he is caught in the morning by thoſe who before had cut the tree with purpoſe to deceive him.

The way to catch Elephants.

The ſaid authour alſo mentions another way whereby they of India ſometimes take and tame them. For there be *Elephants* (ſaith he) in India which be very wilde and fierce, but they are eaſily made tame; namely thus. The people intending to catch them, compaſſe ſome clean place with a deep ditch of about foure or five furlongs in compaſſe, and in one place onely they make a bridge very ſtrait and narrow, being the way to enter in: then they ſet three or foure female *Elephants* which they have alreadie * tamed, and they themſelves lie watching privily till the time that the wilde *Elephants* come and paſſe over the bridge: then on the ſudden do they † ſtop the paſſage, and afterward bring ſome of their ſtrongeſt tame *Elephants* to fight with theſe wilde ones thus incloſed: beſides which, they do likewiſe puniſh them with hunger and lack of meat; and when they be wearied with fighting, they which are bold hardie fellows (by help of the tame *Elephants* to ſhelter them) will privily creep under their bellies and ſuddenly chain and fetter them. After this they move their tame *Elephants* again to

* Theſe females are anointed with a certain oyl, which cauſeth the wilde Elephant to follow them.

† Some ſay they are chaſed in, as is alſo the tame Elephant trained up on purpoſe for ſuch huntings. *Purch.* of Aſia, *lib.* 5.

to beat the wilde untill their fetters caſt them to the ground, and then they yoke them to the necks of their tame ones, and lay chains upon them that thereby they may paſſe on quietly: and at laſt bringing them home, they faſten their legs and necks to a ſtrong pillar, and ſo by hunger and ſocietie tame them; teaching them at the laſt when they begin to feed them, to be obedient to their maſters in ſuch manner as beſt pleaſeth them: and then they will grow ſo loving, gentle, milde, ſerviceable, and docil, as is indeed a wonder. And if by chance any of them ſhall happen through fury to kill his keeper, he will ſhew ſo much ſorrow, and take it ſo heavily, that he abſtaineth from his meat, and ſometimes even pineth to death; like unto that Dolphin, which in the former day I mentioned, who uſing to carry a boy upon his back, one day by meere accident hapned to kill him with one of his prickles, not cloſely couched, before the lad was mounted on his watery ſteed.

The mouſe is offenſive to the Elephant.

The little mouſe is ſometimes offenſive to this beaſt, and will ſtrive to runne into the trunk of his noſe; neither can he endure to eat more of his meat if he ſee but a mouſe runne over it.

But above all, he hath two fierce enemies; *viz.* the *Dragon*, and the admired great *Rhinoceros*, who coming to fight with the *Elephant*, firſt whetteth his horn growing upon his ſnout, and then grapling cloſe, he woundeth the *Elephant* into his belly; for elſewhere the force of his fury cannot enter. *Plin. lib.* 8. *cap.* 20.

And as for the *Dragon*, he likewiſe fighteth furiouſly, becauſe his delight is to ſuck the bloud of the *Elephant*, which is cooling to his hot nature: but drinking too largely of it, (as he will do if he can) down falls the *Elephant* for lack of bloud, and down likewiſe falls the *Dragon*, becauſe he hath ſucked too much: and ſo both die ſtriving together. *Ibid. cap.* 12. or, as [h] ſome ſay, the *Elephant*

[h] Munſt.

phant dying falls upon the Dragon, and ſo kills his foe who killed him.

And in this fight the Dragon deals moſt cunningly: for firſt he ſitteth watching upon a tree, and when the *Elephant* is come neare unto that place, he ſuddenly skips and cleaves round about him: and if then the *Elephant* begin to beat him off againſt a rock or tree, he claſpeth cloſe about his legges, and ſeldome doth the combate ceaſe without the death of both the fighters. A fit embleme this, of thoſe who fall whileſt they ſuck the bloud of others, and periſh in ſuch gains as are purchaſed by the harms of thoſe whom they ſtrive to ſubvert.

An embleme from the Elephant.

Moreover, the *Elephants* have ſuch a kinde of modeſtie and ſhamefaſtneſſe, that the male never covereth the female but in ſecret; and this never but once in two yeares; and that, when the male is five yeares old, and the female ten. From whence, [f] *Geminianus* gathers this inſtruction. By this example (ſaith he) men are taught honeſtly to uſe the acts belonging to their conjugall or matrimoniall eſtate, both according to the place and time. *Ariſe and let us pray* (ſaith young Tobias to his wife) *that God would have pitie on us.* And in praying he likewiſe ſaid, *I take her not for luſt, but uprightly: therefore mercifully ordain, that we may become aged together. And ſhe ſaid with him, Amen.* Of which carefull continence, *Geminianus* gives this reaſon why it ought to be in us; becauſe we are children of the light, and may * not do as the heathens who know not God. Whereupon [g] S. *Auguſtine* ſaith, that they commit adulterie with their wives, who in the uſe of wedlock have neither regard of ſeemlineſſe, nor honeſtie. And *Hierome* likewiſe makes this aſſertion, that nothing is more ſhameleſſe then to make a ſtrumpet of a wife: meaning when they turn the remedie into a diſeaſe, through a

The marriage bed muſt not be abuſed.

f *Gemin. lib. 5. cap. 60.*

Tobit 8. 4, 7, 8.

* Ezek. 8. 6. and 22. 10. Levit. 18. 19.

g See Mr. *Perk.* in his *Aurea Caten.*

luſtfull, immodeſt, and immoderate uſe of the marriage bed.

Furthermore, the Elephants are long-lived, they have great pleaſure in good water, are very impatient of cold, and many of them live [h] almoſt 200 yeares.

h *Munſt.*

A pattern for great men.

Alſo there is one ſingular propertie yet more to be obſerved in them, *viz.* that even the wilde ones living in deſerts will direct and defend ſtrangers and travellers. For if an Elephant ſhall finde a man wandering in his way; firſt of all, that he may not be affrighted, the Elephant goeth a little wide out of the path and ſtandeth ſtill: then by little and little going before him, he ſhews him the way; and if a Dragon chance to meet this man thus travelling, the Elephant then oppoſeth himſelf to the Dragon, and powerfully defendeth the helpleſſe man, who is not able to defend himſelf. So ought it to be chiefly amongſt great men, and thoſe who are mightie; they ſhould not injure ſtrangers and travellers (as many do) when they come into their territories, but rather by themſelves, or theirs, they ſhould direct and ſuccour them from the hurts and harms of evil men.

Gemin. lib. 5. cap. 96.

The Rhinoceros.

The *Rhinoceros* is a beaſt every way admirable, both for the outward ſhape, quantitie, and greatneſſe, and alſo for the inward courage, diſpoſition, and mildeneſſe. For this beaſt is next to the Elephant, every way as ſtrange, and in a manner exceeding him, unleſſe it be in his quantitie or height of ſtature: for although he may be as long, or perhaps longer then an Elephant, yet he is not ſo tall, neither are his legges ſo long; and for the length, it muſt be a large *Rhinoceros* which can meaſure with the Elephant, for ordinarily the Elephant exceedeth, according to the teſtimonie of *Strabo* alledged by Mr *Topſell.*

In the [l] kingdome of *Bengala* great numbers of theſe beaſts may be found: their colour is like the rinde or bark

l *Purch.* 5 book of *Aſia.*

bark of a box-tree; their skinne upon the upper part is all wrinkled, and of ſuch firmneſſe and hardneſſe that no dart is able to pierce it; and being wrinkled, it appeareth as if they were armed with ſhields, or ſet over with ſcales, which go alſo down along their legs to the very hoofs which are parted into foure diſtinct claws. Moreover, upon the noſe of this beaſt there groweth a hard and ſharp horn, crooking a little towards the crown of his head, but not ſo high; it is flat and not round, and ſo ſharp and ſtrong that it will pierce through things of exceeding hardneſſe: and from hence it is that he is called a *Rhinoceros* in the Greek; by which word is ſignified a [k] *Noſe-horned* beaſt. He is headed ſomewhat like to a wilde Boar, and hath again another horn growing upon his withers, but it is a ſmall one. The manner of his fight with the Elephant I have alreadie mentioned: and as for his horn, teeth, fleſh, bloud, claws, & whatſoever he hath without and within his bodie, it is good againſt poyſon, and (as [l] authours write) is much accounted of throughout all India. The reaſon of which vertue is thought to proceed from the ſoveraigne powers which are in thoſe herbs that *Bengala* yeeldeth; for in other places they are nothing ſo precious. Some have thought this to be the right Unicorn: but of that fancie ſee more, as followeth.

k *Topſell.*

l *Purch. ibid. ex Linſcot.*

The Unicorn.

Monoceros is a beaſt with one horn, called therefore by the name of an *Unicorn:* and albeit there be many horned beaſts which may improperly be called Unicorns, yet that which is the right Unicorn indeed, is like unto a colt of two yeares & a half old, which hath naturally but one horn, and that a very rich one, which groweth out of the middle of his forehead; being a horn of ſuch vertue as is in no beaſts horn beſides: which whileſt ſome have gone about to denie, they have ſecretly blinded the eyes of the world from their full view of the greatneſſe of Gods great works. For were it not ſaid that the

horn were excellent and of ſurpaſſing power, I perſwade my ſelf it would never be doubted whether there were an Unicorn or no. But that there is ſuch a peculiar beaſt, the Scripture, both in Deuteronomie, Iſaiah, Job, and the book of Pſalmes, doth bear us witneſſe: In all which places how do Expoſitours tranſlate the originall word, but thus, *Unicornis*, or *Monoceros*, which in Engliſh is an *Unicorn*?

Deut. 33. 17. Iſai. 34. 7. Job 39. 9. Pſalm. 92. 10.

And again, it is the teſtimonie of *Ludovicus Vertomannus*, alledged by *Geſner*, *Topſell*, and others, that he himſelf ſaw a couple of the true Unicorns at *Mecha* in Arabia; one whereof had a horn of three cubits, being of the bigneſſe of a colt two yeares and an half old; the other was much leſſe, and his horn ſhorter, about a ſpanne long, for he was but young: and both theſe were ſent to the Sultan of *Mecha*, for a rare preſent, by the King of Ethiopia, who ever deſireth to be in league with the ſaid Sultan, thinking nothing too deare to maintain his amitie. And certainly he could not ſend him a gift more welcome, eſpecially this being a beaſt ſo rare and ſeldome ſeen; which may be, in regard that it is a creature delighting in nothing more then in a remote and ſolitarie life.

The colour of theſe thus ſent was like a weaſel-coloured Horſe; the head like the head of a Hart; the neck not very long, and the mane growing all on one ſide; their legges ſlender and lean, like the legs of an hinde; the hoofs on the forefeet cloven, and the hinder legges ſomewhat ſhaggie. The neareſt (of any beaſt better known) is the Indian Aſſe, and Indian Horſe; excepting that their hoofs are whole and not cloven, and their colour ſomewhat differing: for there is a horn grows out between their two eyes, like to the true Unicorn. By which it appeareth that of Unicorns there is one principall kinde onely; the reſt are leſſe principall, and ſubordinate

dinate to him whoſe horn is the ſtrongeſt, ſharpeſt, and of the greateſt vertue. For in granting more kindes then one, I do not underſtand every beaſt with one horn; but onely ſuch *Monocerots* as have in their horns vertue againſt poiſon: like unto thoſe horſes of India mentioned but even now, and of which Mr *Topſell* writeth that they have Harts heads, and one horn, of which their Kings and Princes make cups to drink their drink againſt poiſon, finding a great preſervative to be in the ſaid horn. *Munſter* ſaith that the King of Ethiopia hath ſome ſtore of theſe beaſts; and Mr *Topſell* nameth two kingdomes in India (the one called *Niem*, the other *Lamber*) which be likewiſe ſtored with them.

A deſcription of the Unicorns horn.

Moreover concerning the horn, it is neither light nor hollow, nor yet ſmooth like other horns, but hard as iron, rough as any file, revolved into many plaits, ſharper then any dart, ſtraight and not crooked, and every where black, except at the top or point. It hath many ſoveraigne vertues, and with an admirable dexteritie expelleth poiſon: inſomuch that being put upon a table furniſhed with many junkets and banqueting diſhes, it will quickly deſcrie whether there be any poiſon or venime amongſt them; for if there be, then preſently the horn is covered with a kinde of ſweat or dew. And (as it is reported) when this beaſt cometh to drink, he firſt dippeth his horn in the water, that thereby he may drive away the poiſon when venimous beaſts have drunk before him.

How hunters take them.

And again I finde it recorded that the Indian and Ethiopian hunters catch of thoſe Unicorns which be in their countrey, after this manner. They take a goodly ſtrong and beautifull young man, whom they clothe in the apparell of a woman, beſetting him with divers flowers and odoriferous ſpices, ſetting him where the Unicorns uſe to come; and when they ſee this young

man, whom they take to be a woman, they come very lovingly and lay their heads down in his lap: (for above all creatures they do great reverence to virgins and young maids) and then the hunters having notice given them, ſuddenly come, and finding him aſleep, they will deal ſo with him, as that before he goeth, he muſt leave his horn behinde him.

Theſe, and many other things more, concerning this beaſt may be read in the large writings of *Geſner* and *Topſel*, whither I would wiſh the more inquiſitive to have recourſe.

The Lion.

Africa breedeth many *Lions*, and the colder the place is, the gentler they be: and in time of their coupling, eight or ten will follow one female, whereupon ariſe very terrible and bloudie battels among them. They engender backward; and ſo doth the Camel, Elephant, Rhinoceros, Ounce, and Tiger. They ſpare women rather then men, and prey not at all on infants, except in caſe of much hunger: and albeit the Lion be a fierce and cruell beaſt, yet he is ſaid to ſhew great clemencie to the humble and ſuch as proſtrate themſelves ſubmiſſively before him; which he will the ſooner do when he hath lately filled his bellie with a former prey. The male uſeth not to feed with the female, but either of them apart by themſelves. The Lioneſſe or She-lion is the fierceſt, and alwayes the moſt cruell. Their tail is a token of their inward meaning: for if it ſtirreth not, he is gentle and peaceable; but moving, he is angry. Theſe beaſts will keep revenge in minde a long while, either againſt man or beaſt that hath hurt them. And in like manner they will as long be mindefull of a benefit, and do their beſt to make requitall, as is famous by that ſtorie of *Androdus* who was ſlave to a ſenatour of Rome; and one named *Mentor*, a man of *Syracuſa*, upon whom a Lion fawned to have him help his diſeaſed foot.

A ſtorie of a Lion.

For,

For, concerning the firſt; when *Androdus* fled from his maſter by reaſon of ſome hard uſage that he received at his hands, by chance he happened to take up his lodging in a cave; which (unknown to him) was a Lions denne: where when he had been a while, not long before night the Lion came home from hunting, and having gotten an hurt upon his foot, he no ſooner eſpied the trembling man in this fearfull place, but he cometh gently unto him, ſtretching forth his foot, and making mone as though he deſired help. The poore ſlave at the firſt expected nothing but death, neither did he think of any thing more then to have his ſepulchre in the Lions bellie; but at the laſt perceiving what the matter was, he took the Lion by his paw, ſearched the wound, pulled out a thorn, bound up his foot, and gave him eaſe: which kinde office being performed, was firſt of all requited with a daily portion of proviſion which the Lion would bring in for this his gueſt; and he poore helpleſſe man would roſt it in the ſunne as well as he could, and then eat it. But being wearie of this kinde of diet, and as wearie of his ſolitarie life, he went away; for whoſe abſence, the Lion (as himſelf could heare) made great mourning and lamentation. And ſee how it happened; this man did no ſooner depart then he was taken by ſome whom his maſter ſent to ſeek him: and then (alas) there is no way for him but one; die he muſt. Neither ſhall his death be other then a tearing in pieces by cruell beaſts: for the Romanes had a cuſtome to ſit in their theaters and behold ſuch bloudie games, and direfull paſtimes; and therefore they would catch and keep beaſts on purpoſe. But it fortuned that amongſt other beaſts taken this Lion was one, who being brought into the theater, greedily rent in pieces ſuch as were thrown unto him: yet when his old gueſts turn came, he forgot his furie and turned it into fawning, by which the poore ſlave

perceived

perceived what Lion it was, and thereupon gathered up his ſpirits, renewing again his old acquaintance with his former friend, even to the admiration of all the beholders. And the matter being known and related to them, he had not onely pardon for his life, but the Lion alſo was beſtowed on him to wait upon him. *Ælianus* reports this ſtorie, and ſo doth *Aulus Gellius* in his *Attick nights. Hîc eſt Leo hoſpes hominis; hîc eſt homo medicus Leonis*, was that which the people would ſay when they ſaw him leade along his Lion through the ſtreets: *Here goeth* (ſay they) *the Lion which was the mans hoaſt; and there is the man who was the Lions Phyſician.*

And to ſhew that the Lion delighteth not to kill his prey before he be readie to eat it, appeareth by another ſtorie which I finde related by Mr *Topſell,* in his hiſtorie of foure-footed beaſts.

Another ſtorie of a Lion.

A certain Engliſh man being turned Moor, and living in Barbarie, was told of a Lion which lay lurking not farre off; and he, to ſhew his valour, being half drunk, would needs undertake to go and kill him in the place where he was: whereupon he armed himſelf with a ſword, dagger, and musket; having alſo a long large knife about him. And when he came to the place where the Lion was, that he might ſhew himſelf valorous, he would not kill him as he lay aſleep, but toucheth him with the end of his musket that he might awake: which being performed, the beaſt ſuddenly mounted up and eagerly ſets upon this fool-hardie champion, throwing him preſently down to the ground: whereupon he could think of no other but a ſpeedie execution. But ſeeing the Lions bellie was lately filled with a former prey, he forbeareth to kill him; onely he ſtandeth over him and keeps him down with his paws, intending ſo to hold him untill he had a ſtomack to prey upon him. But in the mean time, this champion ſtudying how to acquit himſelf,

himſelf, between hope and fear, draws out his long barbarian knife (for he had his hands at libertie) and with it he wounds the Lion two or three times: but he, deſirous to poſſeſſe his prey againſt his need, never regarded from whence the wounds came, and thereupon he falls at the laſt fainting to the ground, and ſo dying delivers his priſoner againſt his will, who now might triumph in a conqueſt that was altogether beyond either hope or expectation.

Theſe creatures delight much to feed on Camels fleſh, and on the fleſh of Apes: howbeit when they eat Apes, it is more for * Phyſick then for food: and ſometimes they will catch the young Elephants. Neither do they drink often or overmuch; and having eaten to ſatietie, they uſe to faſt † three dayes before they feed again. Their bones (ſaith *Munſter*) be ſound and not hollow, inſomuch that ſome affirm fire may be ſtruck out of them as from a flint: and ſometimes being too fiercely exaſperated to anger, they are in ſuch a heat, that it even burns them up, and kills them. So have I ſeen ſome very powerfull, and exquiſite in many things, and yet but ſlaves to their own paſſions; ruling others, but not able to command themſelves: although there be few but know, that it is a * greater point of valour to ſubdue a mans ſelf, then to conquer a ſtrong and mightie citie.

Ælian. var. Hiſt. lib. 1.

† *Munſt.*

He is truely valiant that can overcome himſelf.

* *Fortior eſt, qui ſe, quàm qui fortiſſima vincit mœnia.*

What *Plinie* hath written of this beaſt, may be ſeen at large in the ſixteenth chapter of his eighth book; to whom, and others, I referre ſuch as deſire more.

The Tiger.

Tigers, like lions, are bred in the Eaſt, South, and hot countreys, becauſe their generation deſireth an abundance of heat. It is a beaſt of a wonderfull ſwiftneſſe: and in the proportion of his bodie he is like to the * Lioneſſe, footed like a Cat, and ſpotted like a Panther, excepting that the ſpots be long and all of a colour. Generally they be cruell, ſharp, ravenous, and never ſo tamed

* And note that his Muſtachios are holden for mortall poiſons cauſing men to die mad if they be given in meat. *Purch.*

but ſometimes they return to their former natures: but above all, in the time of their luſt, or when they be robbed of their young, they are moſt raging and furious. [m] *Plinie* hath deſcribed the manner how the hunters get away their whelps very commonly. They come upon horſeback, and finding the old Tigers from home, they take up their young ones and poſte away as faſt as they can; and on the ſudden they finde themſelves purſued, wherefore when the old one cometh neare them, they let fall one of her whelps on purpoſe, that whileſt ſhe is carrying that to her neſt, they may eſcape ſecurely with the reſt. And ſometimes they make round ſpheres of [n] glaſſe which they caſt before her when ſhe cometh, and thinking (by reaſon of her own ſhadow) that ſhe ſeeth her young ones there, ſhe rolleth it to her denne, where ſhe breaketh it with her claws, and finding her ſelf deluded runneth after the hunters again, by which time they are gone too farre for her to finde.

m *Plin. lib.* 8. *cap.* 18.

n *Munſter, Topſell.*

There is an [o] herb neare the river *Ganges*, growing like *Bugloſſe*, the juice whereof is ſuch that if it be poured into the mouth of their dennes, they dare not come forth, but will lie howling there till they die.

o *Topſell.*

The Panther.

The *Panther* is a beaſt little differing from a *Leopard* or *Libbard*: [p] ſome think they differ in nothing but in ſex. In Greek the generall name is *Panther*; the ſpeciall names, *Pordalis* and *Pardalis*. *Pordalis* is taken for the male, and *Pardalis* for the female. And in Latine it is called *Pardus* and *Panthera*: where it muſt be again obſerved that *Pardus* ſignifieth the male Panther, and *Panthera* the female. Neither is the difference between the Leopard and Panther onely in ſex, but rather in reſpect of a mixt and ſimple generation: for there is no Leopard or Libbard, but ſuch as is begotten between the Lion and the Panther, or the Panther and the Lioneſſe.

p *Plin. lib.* 8. *cap.* 17.

How the Leopard is begotten.

This is a beaſt which hath varietie of colours, a ſweet breath,

breath, and is very fierce and wilde, inſomuch that ſome have therefore called him a *Dog-wolf*; and yet being full, he is gentle enough. He ſleepeth three dayes (ſaith *Munſter*) and after the third day he waſheth himſelf and cryeth out, and with a ſweet ſavour which cometh from his breath, he gathereth the wilde beaſts together, being led by the ſmell: and then (ſaith *Plinie*) doth he hide his head very cunningly, leſt his looks ſhould affright them; whereupon, whileſt they gaze upon him, he catcheth his prey of which he pleaſeth. So have I known ſome hide their ill meanings with fair and ſweet-breathed words; having hony in their mouthes, but gall in their hearts; and a direfull intent cruelly to hurt when they ſeem moſt of all to pleaſe. For ſugred ſpeeches will catch the credulous; neither is all gold that fairly gliſters.

An embleme from the Panther, concerning fair tongues and falſe hearts.

Now the reaſon why theſe beaſts have ſuch a ſweet breath, I take to be in regard that they are ſo much delighted with all kinde of ſpices and daintie aromaticall trees: inſomuch that (as [q] ſome affirm) they will go many hundred miles in time of the yeare when theſe things are in ſeaſon; and all for the love they bear to them. But above all, their chief delight is in the gumme of camphorie, watching that tree very carefully, to the end they may preſerve it for their own uſe.

q *Topſell.*

The Camel.

Of *Camels* there be chiefly three ſorts: the firſt called *Huginn*, of great ſtature and ſtrength, able to carrie a [r] thouſand pound weight: the ſecond leſſe, with two bunches on the back, and ſometimes one upon the breaſt; theſe are called *Becheti*, are found onely in Aſia, & are fit both for carriage, and to ride on. The third ſort is meagre & ſmall, not uſed to burdens, yet able to travell above an hundred miles in one day: this kinde they call *Raguahill*.

r *Purch.*

The Arabian and Bactrian Camels, although they want horns, yet they have [ſ] teeth but on one ſide. And of all the ſorts, their necks are long & nimble, by which the whole

ſ *Plin. lib. 8. cap. 18.*

bodie is much relieved, ſeeing it can reach to moſt parts; their heads are ſmall, and feet fleſhie, in which regard they uſe to be ſhod with leather for fear of graveling; I mean ſuch as are tame and made ſerviceable. They love graſſe, eſpecially the blades of barley; and when they drink, the water muſt not be cleare but muddie. The ſurname therefore of the Camel, is *Trouble-bank*; for they will [t] mud the water with their feet, otherwiſe they take no delight to drink it. So have I ſeen ſome, never better pleaſed then when they trouble the cleare fountains of juſtice and pure doctrine, with the muddie ſtreams of injuſtice and errour. Or ſome, never better cheered then when they may drink deeply of the dirtie puddles of worldly wealth, little regarding the ſweet taſte of the water of life, which is a cleare river running from the throne of God and the Lambe, Rev. 22. And as for the bunch upon the Camels back, the Scripture doth thereby expreſſe the ſwelling pride and confidence of rich worldly men, who as hardly enter into the kingdome of God, as the Camel with his bunched back can go through the * eye of a needle.

t *Plin. ibid.*

An embleme from the Camel, concerning thoſe who preferre earth before heaven.

*Matth. 19. 24.

The Horſe and Camel great enemies.

The Horſe and the Camel are great adverſaries; and with his very ſight and ſtrong ſmell, the horſe is terrified. *Cyrus* therefore being excelled by the Babylonians in horſemanſhip, uſed this ſtratagem of the Camels.

Stuffes made of Camels hair.

And as for our fine ſtuffes, as grogeram, and chamblet, they be made of Camels hair, as ſome affirm: as alſo there is a courſer hairie cloth to be made of the worſt of this hair, ſuch as was that garment worn by John Baptiſt in the wilderneſſe.

A leſſon of patience and humilitie taught by the Camel.

And of the Camels this one propertie more; when their maſters load them they will bowe themſelves, and ſtoup down to the very ground with their knees, patiently enduring to take up their burden. So have I ſeen ſome, as willingly humbled under the croſſe, and as patiently

ſtouping

ſtouping to take it up, and follow their maſter Chriſt who went before them. For it is a true rule, that God can and doth love his children well, although he make no wantons of them.

Moreover the *Dromedarie* is a kinde of Camel, but leſſe, and farre more ſwift. *The Dromedarie.*

And as for the *Cameleopardus*, he is begotten by a mixt generation between the Camel, and Leopard or Panther. *The Cameleopard.*

The *Hyæna*, as it is deſcribed by [u] *Plinie*, is a beaſt whoſe neck hath no joynt, and therefore he ſtirres not his neck but with bending about his whole body. He will imitate humane voice, and drawing neare to the ſheep-coats, having heard the name of ſome of the ſhepherds, he will call him, and when he comes, devoure him. His eyes have many colours; and the touch of his ſhadow makes a dog not able to bark. And (as the Magicians would make us beleeve) this beaſt hath the power of incantation: they therefore tell many ſtrange things which they be able to do. *The Hyæna* [u] *Lib. 8. cap. 30.*

Neither is this any other then the [x] common or vulgar *Hyæna*, which is likewiſe called *Lupus veſpertinus, a wolf of the night*, being in quantitie of body very like a Wolf, but much more rough in his hair, and briſtled all along his back like a horſes mane, the middle whereof is ſomewhat crooked. His colour is yellowiſh, but ſpeckled on the ſides with blew ſpots. [x] *Topſell.*

The ſecond kinde is called [y] *Papio* or *Dabuh*, bigger and rougher then the former, with feet ſomething like to a mans hand. They breed much about Ceſarea; and their cuſtome is, being gathered together, for one of them to go before his company ſinging and howling, and all the reſt anſwering him with a kinde of correſpondent tune; whoſe voices are ſo ſhrill and ſounding, that although they be remote and farre off, men may heare them as if [y] *Idem, pag. 439.*

they were hard by: and when one of them is ſlain, the reſidue flock about his carcaſe, howling as if they ſhould make funerall lamentations for the dead. They ſometimes, being compelled by hunger, will ſearch into the ſilent graves of dead men.

The Corcuta. The third kinde is the *Corcuta*, and this happeneth when the Lioneſſe and the Hyæna do ingender together.

The Mantichora. The fourth is *Mantichora*; he is bred among the Indians, having a treble row of teeth beneath and above, with a broad face faſhioned like to the face of a man, a beard both on his chin and upper lip; his eyes are gray, and his colour red, and in the ſhape of his body and legs like to a Lion. His tail is long and ſlender, armed at the end with ſharp quils, with which he woundeth the hunters when they ſet upon him; and this is ſtrange, that the quils being darted off do preſently grow again. And as for his chief delight, it is to eat mans fleſh.

Zebra. [a] *Purch. lib.* of Africa, *cap.* 1.

The *Zebra* is a beaſt which amongſt [a] all creatures both for beautie and comelineſſe is admirably pleaſing. He reſembles a horſe of exquiſite compoſition, but not altogether ſo ſwift, all overlaid with partie-coloured laces and gards, from head to tail. In Africa they abound, and live in great herds together.

Muflo. [b] *Munſt. Coſ. Epit.*

In the countrey of Sardinia there is a certain beaſt which they call *Muflo*, the like whereof (as [b] ſome affirm) is not in all Europe. It hath a skinne and hairs like unto a Deer or Hart, crooked horns like unto a Ramme, which bend backward about the eares. In bigneſſe he may be compared to a Buck: he feedeth onely upon graſſe and herbs, and keepeth moſt about mountains, is very ſwift in running, and his fleſh is very good to be eaten.

The Ovaſſom. In Virginia there is a beaſt called *Ovaſſom*, which hath a head like a Swine, a tail like a Rat, as big as a

Cat,

Cat, and hath under his belly a bag, wherein they carrie their young. *Purch.*

Moreover I finde in the ſaid authour, that their Dogs in that countrey bark not, their Wolves are not much bigger then our Foxes, and their Foxes like our ſilver-haired Conies, and of a differing ſmell from ours. Virginia Dogs, Wolves, Foxes, &c.

The *Wolf* is a ravenous and devouring beaſt, and rightly ſurnamed *Spoil-park*; and thoſe of the common ſort have grizled hairs,being white under the belly, a great head, and armed with big and long teeth, ſparkling eyes, and ſhort prickt eares; and for his feet, they be ſomething like to the feet of a Lion. He is therefore called *Lupus* from *Leopes*; *quia pedem quaſi pedes Leonis habet.* *The Wolf.*

Where theſe creatures live, the people are much infeſted with them: they will ſometimes ſteal from their folds abroad, and ſometimes do them miſchief at home. When they come to the ſheep-folds,they obſerve which way the [c] winde bloweth, and then they come marching againſt it, that thereby they may the better deceive the ſhepherd and his dogs. And when they prey upon Goats, they [d] hide themſelves under the leaves of * trees that they may the more eaſily obtain their deſire. When they catch little children, it is ſaid that they will play with them for a while (as the cat playes with the mouſe) and at the laſt devoure them.

c *Gemin.lib.5.c.39.*

d *Ibid.*

* Or elſe come with the green leaves and ſmall boughs of oſiers, &c.

Plinie and *Olaus Magnus* write, that Egypt and Africa bring forth but ſmall Wolves in reſpect of thoſe which are in the Northern parts of the world: and as the Elephant is impatient of cold, ſo theſe beaſts do as much deteſt heat. And again there be certain mountains which part the kingdomes of *Swetia* and *Norway*, upon which live whole herds of white Wolves. *Plin.lib.8.cap.22.* *Ola. Mag. lib. 18.*

[e] Some ſay that if the heart of a Wolf be kept dry, it will render a moſt fragrant or ſweet ſmell; and in the

e *Topſ.*

bladder

bladder of a Wolf is a certain ſtone of a ſaffron or hony colour, which inwardly containeth as it were certain weak ſhining ſtarres. But this (me thinks) is ſtrange. The Ravens are in perpetuall enmitie with Wolves, and the antipathie of their natures is ſo violent, that if a Raven eat of the carcaſe of a beaſt which the Wolf hath either killed or formerly taſted of, ſhe preſently [f] dieth: and again it is reported that when a Wolf eſpieth a ſingle paſſenger travelling by the way, if he thinks himſelf not able to ſet upon him, he will make ſuch a piteous howling that his companions ſuddenly come to help him.

[f] *Ibid.*

Romulus & *Remus* not nurſed by a Wolf.

Romulus and *Remus* were ſaid to be nurſed by a ſhe-Wolf: but *Lupa*, ſignifying *a devouring Harlot*, may rather be applyed to *Laurentia* the wife of *Fauſtulus*, who had played the harlot with certain ſhepherds.

Wolves have no ſocietie but with beaſts of their own kinde: and above all creatures, they and dogs are moſt ſubject to madneſſe; the reaſon of which is, becauſe their bodies are cholerick, and their brains increaſe and decreaſe with the moon.

And as for their ſeverall kindes, ſee more in *Geſner*, *Topſell*, *Olaus Magnus*, and ſuch others.

The Fox.

Vulpes, the *Fox*, is a ſubtill craftie creature. They differ in colour according to the climate wherein they be bred, and ſometimes alſo in quantitie. The urine of this beaſt falling upon any herb or graſſe, drieth it up, and cauſeth it to wither. His fat or greaſe is good againſt the cramp or gout: and ſo alſo is his skinne, if it be wrapped about the grieved place; teſtified by *Olaus Magnus* in the eighteenth book of his Northern hiſtorie.

The ſubtilties of the Fox.

Moreover, concerning the ſubtilties of this beaſt, they be in a manner infinite. By putting his tail into the water he will catch an abundance of crabs and lobſters at his

his pleaſure; for they take great delight to hang and enwrap themſelves into ſuch bruſhie ſtuffe, and he hath as great delight to fiſh them out.

And again, when cold, ſnow, and hunger ſhall oppreſſe him, coming neare ſome farm or manſion-houſe, he feigneth a kinde of barking like a dogge, that thereby the houſhold beaſts may more confidently keep themſelves without fear, being often uſed to the barking of a dogge: and ſo having gotten himſelf neare unto his prey, he will lie upon his back with his belly upwards, mouth open, tongue out, and every way ſeeming as if he were dead; then the hens, or geeſe, or what elſe is fit for him, are ſuddenly ſurpriſed and cunningly caught, whileſt they little dreamed of ſuch a ſubtilty.

Sometimes again he will roll himſelf in red earth, and beſmearing himſelf with it as if he were bloudie, he will again lie on the ground, verily ſeeming as if he were dead, by means whereof he inviteth the fowls to come and prey upon him: but he deceiveth them in his craftie wilineſſe; and being deceived, they are taken.

Alſo, he ſometimes eſcapeth the danger of dogges by a counterfeit barking, by which he feigneth himſelf to be one of their kinde. And by his ſubtiltie he eſcapeth from the ſnares, and that not ſeldome: for if he be taken by the foot & cannot free himſelf, he will proſtrate himſelf upon the ground, and ſhew no appearance either of life or breath: inſomuch that when he cometh who ſet the ſnare, and findeth him in this poſture, he will ſuppoſe him to be no other then he ſeemeth; and then looſing the ſnare without any thought that he ſhould eſcape, he ſuddenly riſeth and runnes away. The like was credibly reported to me of a Fox, creeping into a mans houſe at a little hole, who filling himſelf too full, knew not how to get out; whereupon in the morning he was found as dead: the man kicks him about the

houſe, and at the laſt throws him out of doores on the dunghill; where he was no ſooner with joy arrived, but up he ſtarts, and findes his legges as readie to carrie him as he was willing to eſcape.

Moreover, being hunted he will ſometimes runne among a flock of ſheep or goats, and get upon the back of ſome one or other of them, forcing that ſheep or goat to runne; the reſt follow, inſomuch that the hunters are unwillingly compelled to call in their dogges, for fear they ſhould ſeize upon, or harm the flocks.

How the Fox catcheth fleas.

And to rid himſelf from fleas, he hath this device, reported by *Olaus Magnus*. He takes in his mouth a little wiſp of ſoft hay, with which he wrappeth a little hair; and coming to a river, he puts himſelf in, all but the head: then when the fleas are come up ſo high as his head, he ſinketh lower, even till the hay in his mouth touch the water; by means whereof the fleas are driven thither: and being there, he lets the wiſp go, and ſo cleares himſelf.

d *Topſell.*

In like ſort he [d] deceiveth the Hedge-hogge; for when the Hedge-hogge perceiveth the Fox coming to him, he rolleth himſelf together like a foot-ball, and ſo nothing appeareth outwards but his prickles, which the Fox cannot endure to take into his mouth, and therefore the craftie Fox, to compaſſe his deſire, licketh gently the face and ſnout of the Hedge-hogge, by that means bringing him to unfold himſelf again, and to ſtand upon his legges; which being done, he inſtantly devoureth him by poyſoning him with the urine that he maketh upon the Hedge-hogges face.

† *Gelin. lib. 5. cap. 39.*

He hath a trick likewiſe to † revenge himſelf upon the Brock or Badger; for there is great enmitie between them: the Fox therefore finding the Badger gone from home, for the ſpite he beares him, will come and

with

with his piſſe defile the Badgers denne: whereupon he is forced to forſake it and ſeek a new.

But was not that a cunning tame Fox who would ſtand all the day quietly chained according to his maſters minde, and when night came would ſlip his collar, and go out to kill the neighbours geeſe; and before morning come again, and put his head within his collar, preſenting himſelf to his maſter, as if he had never gone out?

A cunning trick of a tame Fox.

Moreover, the young whelps of the Fox, when they can finde no more milk in the paps of their damme, will bite them with their teeth, and rend and teare them, reputing them as ſtrangers. So have I ſeen fraudulent friends, who will love no longer then you feed them. *Tam diu ſtat, quamdiu utilitas durat*, ſaith [e] one; *They abide ſo long as there is profit for them:* according to that of *Seneca, Qui utilitatis cauſâ aſſumptus fuerit, tam diu placebit, quamdiu utilis erit.* And indeed it is too true, as common experience beareth witneſſe.

An embleme from the Fox and her young, concerning falſe friends.

e *Idem.*

Lynx is a ſpotted beaſt much like a Wolf; it hath a more piercing ſight then any creature in the world. And of Lynxes it is ſaid there be two kindes; the one a greater, which hunteth Harts and great beaſts; the other a ſmaller, which hunteth Wilde-cats and Hares. Of this laſt kinde *Olaus Magnus* writeth, that there be ſome of them in the Northern woods of *Suetia* and *Norway:* and generally there be many countreys both in Europe, Aſia, and Africa, which abound with both kindes. But above all, thoſe which are bred in Europe are commended for the beſt ſpotted: and in Europe, thoſe of *Scotland* and *Swetia* are [f] moſt beautifull.

The Lynx.

f *Topſ. ex Bellon.*

He is a beaſt as ravening as a Wolf, but more craftie; and, as he findes his opportunitie, will prey upon man as well as beaſt. Howbeit, in the ſummer time they be very weak, and live faintly among the rocks, never ſtraying farre from home, hurting no man untill the Au-

tumne. And for the manner of catching their prey, moſt commonly it is thus; They will get up into trees, and there lie in wait for their bootie untill they eſpie it under the boughs, and then ſuddenly do they leap into the neck of it, whether it be[g] a man or great beaſt; wherein they fix their claws ſo faſt, that no violence can ſhake them off: and then with the ſharpneſſe of their teeth, they firſt bite into the skull, and eat out the brains.

g *Idem ibid.*

The ancient Pagans dedicated this beaſt to Bacchus, feigning that when he triumphed in his chariot of vine-branches, he was drawn by Tigers and Lynxes.

They love their young ones very entirely: and that ſome ſhould think they are bred between a Wolf and a Hinde, is utterly without reaſon, ſeeing there is ſuch hoſtilitie and adverſe diſpoſition in their natures.

It is reported that when they be taken they will ſhed forth many tears, and weep very pitifully: and their urine congealed, turneth it ſelf into a precious ſtone, which for brightneſſe reſembleth the Amber being a ſtone of ſoveraigne vertue: and they, knowing their urine to be thus beneficiall, rather then man ſhould finde it, they uſe to hide it in the earth or ſand; and yet they are deceived: for (as[h] *Plinie* writeth) it is there ſooneſt of all converted into a ſtone, and not ſeldome found. Which, by[i] *Geminianus*, is rightly made an embleme of the envious man, who will not onely endeavour to do hurt, but be heartily ſorie if by chance it be his hap to do any one good.

An embleme of envie.

h *Lib.* 37. *cap.* 3.

i *Lib.* 5. *cap.* 71.

The Beaver.

The *Beaver* is a beaſt of a very hot nature, living both in the water and on the land, and differeth from an Otter onely in the tail. Germanie, Spain, France, Italy, and divers other places abound with theſe beaſts. His ſtones are much uſed in phyſick, the hunters therefore catch him that they may geld him; whereupon he is called *Caſtor:* for it is but a fable to ſay he biteth out his

own ſtones when they come to take him; for indeed they lie too cloſe in his bodie to be pulled out with his teeth. Theſe ſtones, and genitalls, the Phyſicians call *Caſtoreum:* and as for his skinne and hairs, their uſe is alſo excellent.

The *Otter* is ſomething leſſe then a Beaver, and may well be called *A dog of the water*: and (as Mr *Topſell* thinketh) is, without all doubt, a kinde of Beaver. It is a ſharp-biting beaſt, never letting his hold go untill he make the bones to crack between his teeth: and as for the females, they uſe to give ſuck to their whelps, untill they be almoſt as big as themſelves. *The Otter.*

Olaus Magnus calleth them [k] *Lutræ, quadrato ore mordaces*; and telleth us that ſome great men in Suetia keep tame Otters in their houſes, which are ſo tractable that the cook of the kitchin can ſend them into the fiſh-ponds to bring him fiſh for his maſters dinner. [k] *Lib.* 18.

Their skinnes (beſides other uſes) if they be worn in caps, or ſtocking-ſoles, are good and wholeſome againſt the palſie, megrim, and other pains of the head. *Topſell.* A medicine for the megrim, and palſie.

Sciurus, the *Squirrell*, is a quick nimble creature which will skip from tree to tree with great facilitie. When ſhe is out of her neſt, her tail ſerveth to ſecure her both from ſunne and rain. Howbeit, it is ſometimes a hurt unto her: for the hairs of it be ſo thick, that ſtriving to ſwimme over a river, her tail is ſo laden with water, that ſinking ſhe drowneth. Wherefore nature hath taught her this prettie piece of policie; namely, to get upon a little piece of wood, which ſwimming wafts her ſecurely over: and wanting a ſail, her buſhie tail ſet up and ſpread abroad, ſupplies the room of that defect. *The Squirrell.* *Olaus Mag. ibid.*

[l] *Plinie* ſaith they have great foreſight in the change of weather, and will therefore ſtop up the hole of their [l] *Plin. lib.* 8. *cap.* 38.

neſt on that ſide from whence the tempeſt is like to blow, opening a paſſage in the contrarie place, or ſide oppoſite to it. The like whereunto is affirmed of the Hedge-hog alſo.

Their skinnes are exceeding warm, and their tails profitable to make bruſhes: their fleſh is tender, and in a manner comparable to the fleſh of Kids or Conies; & yet not very wholſome, except the ſquirrell were a black one

When this beaſt is hunted, ſhe cannot be driven to the ground to creep into hedges, unleſſe extremitie of faintneſſe cauſe her ſo to do through an unwilling compulſion: for ſuch ([m] ſaith one) is the ſtately minde of this little beaſt, that while her limbes and ſtrength laſteth, ſhe tarrieth and ſaveth her ſelf in the tops of tall trees, diſdaining to come down for every harm or hurt which ſhe feeleth; knowing indeed her greateſt danger to reſt below, among the dogs and buſie hunters. From whence may be gathered a perfect pattern for us, to be ſecured from all the wiles and hungrie chaſings of the treacherous devil; namely that we keep above in the loftie palaces of heavenly meditations: for there is ſmall ſecuritie in things on earth; and greateſt ought to be our fear of danger, when we leave to look and think of heaven.

m *Topſ. pag.* 658.

An embleme from the hunted Squirrell, concerning the ſmall ſecuritie in things on earth.

A ſtrange beaſt called a Su.

But I come to another beaſt; which in *Topſells* hiſtorie is thus deſcribed. There is in the New-found World farre into the South, a ſtrange and terrible beaſt, which they of the countrey where it liveth, call a *Su*; ſo named becauſe it liveth neare the water, and *ſu* in their language ſignifieth *water*. It is a creature of a very deformed ſhape, monſtrous preſence, a great ravener, and altogether untameable. She hath a mightie great tail, which is bruſhie, fierce talons, and a cruell look. Now when hunters (for the deſire of her skinne) ſhall ſet upon her, ſhe flieth very ſwift,

carrying her young ones upon her back, and covereth them with her broad tail. And the hunter, not daring to encounter with her but by treacherie, is forced to this project; namely to dig great holes in the ground and cover them over with boughs, ſticks, and earth: which he doth ſo weakly, that if the beaſt chance at any time to come upon it, ſhe and her young ones fall down into the pit, where they have no way but one, they muſt be taken. But this cruell, untameable, impatient, violent, ravening, and bloudy beaſt, perceiving that her naturall ſtrength cannot deliver her, firſt of all, to ſave her young ones (as ſhe ſuppoſeth) ſhe deſtroyeth them all with her own teeth, ſo that never any of them could be taken and tamed; and then howleth and roareth at the hunters who come about her; but now they need not fear her, ſhe is ſecure enough: whereupon they uſe means quickly to diſpatch her, and by fatall blows to ſtop her mouth from bawling. Then they take off her skinne, and leave her carcaſe in the earth: and of what uſe her skinne is, I have not heard.

The Hedge-hog

The *Hedge-hog* is a beaſt well known, about the bigneſſe of a conie, but like to a Swine; having her body beſet with and compaſſed all over with ſharp thorny hairs, or pricking briſtles, which ſhe ſetteth up or keepeth down at her pleaſure: and by theſe ſhe defendeth her ſelf from thoſe who ſeek her life; which is attributed to her as a kinde of craft and wilineſſe. Some therefore have likened a deceitfull man unto this beaſt, who turneth and windeth himſelf for all advantages, and is now this, then that, & ſometimes neither this nor that.

Between him and the[n] Serpent there is mortall hatred: for it is ſaid that the ſerpent will ſeek out the hedge-hogs den, and then falleth upon him with purpoſe to kill him, but the Hedge-hog draweth himſelf up together round like

n *Topſ. pag.* 279.

like a foot-ball, ſo that nothing appeareth but his thornie pricks: whereat the Serpent biteth in vain, for the more ſhe laboureth to annoy the Hedge-hog, the more ſhe is wounded and harmeth her ſelf; howbeit the height of her minde, and hate of her heart be ſuch, that they will not ſuffer her to let him go, till one or both parties be deſtroyed: yea it ſometimes ſo happeneth, that the leaſt creature hath the beſt ſucceſſe, and gets the conqueſt. So have I ſeen ſome provoke others to their own ruine: for if proud mindes and high ſpirits could alwayes have their wiſhed ends, the low ſhrubs ſhould never thrive, nor mean eſtates enjoy the ſunne.

An embleme from the Serpent and Hedge-hog, concerning mean eſtates.

The Hedge-hog changeth his neſt. The embleme detecteth Time-ſervers, and unconſtant Profeſſours.

Moreover (as is reported) this beaſt altereth and changeth her neſt according to the blowing of the North or Southern winde. So have I heard of thoſe, whoſe care hath been to apply themſelves unto the times, apt to turn with every winde, altering their judgements and opinions in time of perſecution, from that which they held in time of peace and quiet: whereas a hardie ſouldier is never known but in a winter ſiege, nor a true Chriſtian but in a fierie triall.

The Porcupine, or *Mountain Hedge-hog.*

Next after the Hedge-hog I may mention the *Porcupine,* or *Porcuſpine,* from *Porcus* and *ſpina*; ſo called, becauſe he is, as it were, a thornie-hog, or another Hedge-hog ſomething differing from the former: for the vulgar Hedge-hog is *Ericius ſylveſtris,* and the Porcupine *Ericius montanus.* This beaſt is uſually bred in India and Africa, and brought up and down in Europe to be ſeen for money.

The generall proportion of his bodie is like a Swines; and ſeldome is it that they be bigger then a pig of half a yeare old. But in the particular members there is ſome difference, as in his eares which are like to the eares of a Man, his mouth ſomewhat like to the mouth of a Hare, but with a longer ſlit, and with three of his

foreteeth

foreteeth in his upper jaw hanging out of his mouth: his two hinder feet are ſomething like the feet of a Bear, and thoſe before like the feet of a Badger; and in a word, his bodie is beſet with certain ſharp quills or prickles, which, when he is hunted, he can dart off either in the mouthes of the dogs, or legs of the hunters. And of theſe quills men make wholeſome tooth-picks; for it is ſaid that if we ſcrape our teeth with theſe, they will never be looſe. *Topſell.*

Armadilio is a beaſt in India like unto a young pig, covered over with ſmall ſhells like unto armour: it lives like a mole in the ground. *The Armadill.*

The *Alborach* is a fair white beaſt like an aſſe, frequent in the Turkiſh territories, upon which beaſt *Mahomet* was carried up to heaven; as the blaſphemous Prieſts of that nation perſwade the ſillie pilgrims of *Mecha. Idem.* *The Alborach.*

The *Hare* is a fearfull creature and well known to every one. *Geſner* deſcribes her amply in his hiſtorie of beaſts, as alſo *Topſell*, [o] *Plinie*, [p] *Olaus Magnus*, and ſuch others. Now the cauſe of fear in this creature, is in regard that ſhe hath no other arms to defend her from being taken, but her little prettie nimble legs and ſwift running. It is ſaid that when they watch they ſhut their eyes, and when they ſleep they open them; which how how true it is, I know not: howbeit the Egyptians, when they would ſignifie an open and manifeſt matter, uſed to picture an Hare ſleeping. *The Hare.*

[o] *Lib.* 8. *cap.* 33.
[p] *North. hiſt. lib.* 18.

Moreover, it is eaſily ſeen that the Hare hath longer legs behinde then before, and ſo runneth faſter up the hill then down; contrary to almoſt any other beaſt, for they make more ſpeed downward then up. Whereby (ſaith [q] one) may be ſignified, that whereas moſt men in the world go down the way which leadeth to deſtruction, he which is good, will imitate the watchfull Hare,

[q] Willet on Levit.

An embleme from the Hare, concerning the wayes to heaven and hell.

and climbe up cheerfully the way to heaven: which was prefigured by aſcending up to Sion, *the mountain of the Lord*, Pſal. 24. 3.

Another.

And again, the Hare hath very long eares, is quick in hearing, but dull of ſight; which, to applie it as an embleme, may be thus: the [r] eare, being the inſtrument of hearing, is *ſenſus doctrinæ*, *the ſenſe of doctrine*, and gate to let in good inſtruction; but the eye, being the ſenſe of ſeeing, is the inſtrument of delight and vanitie. Wherefore we ſhould be ſwift to heare things for our inſtruction, and ſhut our eyes from beholding things that tend to vanitie.

r *Idem ibid.*

How to uſe our hearing and ſeeing.

The Conie

ſ *Topſell.*

The *Conie* is a beaſt neare of kinde to the Hare: in ſome countreys they [ſ] begin to breed being but ſix moneths old, but in England at a yeare old, and ſo continue bearing every moneth, or at the leaſt ſeven times in one yeare. Their young are blinde at the firſt, and (like whelps) ſee not untill they be nine dayes old; neither hath their damme any ſuck for them till ſhe hath been ſix or ſeven houres with the male, or at leaſt ſhe cannot ſuckle them for the deſire that ſhe hath to accompanie the buck, which if ſhe be not preſently permitted to do, ſhe will have no propenſitie any more untill 14 dayes after.

* Markham's Meth.

The males will * kill the young ones, if they come at them, as the he-cat uſeth to do; and therefore it is thought that the females uſe to cover up their neſts with earth, and keep them cloſe untill they be ready to runne. Their fleſh is [t] commendable, light of digeſtion, wholeſome, cleanly, nouriſheth temperately and firmly: and what commoditie a good warren of conies bringeth toward the keeping of a good houſe, men who love hoſpitalitie know very well. Howbeit they have ſometimes proved dangerous about cities and caſtles by undermining their walls: for (as *Plinie* writeth in the 29 chapter

t Haven of health, pag. 119.

of

of his eighth book) there was a town in Spain overthrown by the digging of conies; and one again in Theſſalie deſtroyed by the caſting of moles. It is not good therefore to let them have a freedome of breeding too neare our houſes for fear of damage. To conclude, [n] they uſe not to live very long, and chiefly they take delight in hard and ſandie grounds which are drie; for they have no greater enemie then the wet: from whence it proceedeth that their greateſt infirmitie is rottenneſſe. And therefore for thoſe who keep tame conies, *Markham* teacheth that they ſhall onely take the fineſt, ſweeteſt, and drieſt hay that they can get, and mix it very well with the herb hare-thiſtle, and therewith feed their conies; which medicine will both cure and prevent the foreſaid maladie. And note, that in India there is a little beaſt called a *Pig-conie*, with ſhort round eares, and a bodie ſomewhat rounder and fuller then our conies.

[n] Mark. ibid.

The Ferret

The *Ferret*, in Latine is called *Viverra, quaſi vivens in terra*, as living in the earth, creeping into, and ſearching in the holes thereof; by which means they infeſt no creature more then the conie. This is a bold and audacious beaſt (though little) and an enemie to all other, except their own kinde: and when they take a prey, their cuſtome and manner is, onely to ſuck in the bloud as they bite it, and not to eat the fleſh; and if at any time their prey ſhall be taken from them, they fall a ſqueaking and crying. Such (ſaith one) are the rich men of this world, who yell, and crie out, when they part with their riches; weeping and wailing for the loſſe of ſuch things, as they have hunted after, with as much greedineſſe as want of pitie: in whoſe commendation, I think as much may be ſaid, as was once by a preacher at the black funerall of an uſurer; of whom there is this ſtorie.

An embleme from the Ferret, concerning covetous rich men.

A ſtorie of an uſurer.

A great rich uſurer, having purchaſed a mighty eſtate, was at the laſt ſent for by death to leave the

world: and lying upon his bed, the Doctours and Phyſicians finding his ſickneſſe to be mortall, give him over. Then do his friends about him ſend for a Divine to come and comfort him; who willingly tells him of many comforts for his ſouls health, and amongſt other things puts him in minde of this, viz. that he had been a great purchaſer upon earth, but now he muſt ſtudie for another purchaſe, which was the kingdome of heaven. Now the uſurer turning upon the other ſide, at the hearing of the word *purchaſe*, anſwered, *I will not give more then according to fifteen yeares for a purchaſe*, and ſo died. Afterwards, this gentleman preaching at his funerall, in the concluſion of his ſermon ſaid onely thus; *Brethren, it is now expected that I ſhould ſpeak ſomething concerning our brother here deceaſed: I will end it in few words, namely theſe: How he lived, you know; how he died, I know; and where his ſoul now is, God Almightie knows.*

The Poul-cat.

The *Poul-cat*, or *Fitch*, in Latine is called *Putorius*, *à Putore*, becauſe of his ill ſmell; for when they are provoked or ſtirred, they ſtink grievouſly. Their delight is to ſuck egges, kill and eat Hens and Chickens: and it is worth obſerving, that their craft in devouring their prey is ſingular; for to the intent that the ſillie creatures to be devoured may not betray them to the houſekeepers, the firſt part that they lay hold on with their mouthes is the head of the Hen or Chicken, by which means they bite off their heads and ſo keep them from crying.

The Weaſel.

The *Weaſel* in Latine is called *Muſtela*, from μῦς and ςέλλω, of ſnatching up of mice: for (though an enemie to pullen) ſhe devoureth and deſtroyeth mice: and becauſe ſhe hath been often ſeen to carrie her young ones in her mouth, ſome have thereupon ſuppoſed, that ſhe conceived by the eare and brought forth by the mouth: and for this cauſe *Ariſteas* (mentioned by *Geſner* and *Topſell*) writeth that the Jews were forbidden to eat them; for this

this their action is an embleme (ſaith he) of folly and fooliſh men, which can keep no ſecrets but utter all that they heare: for there be many, who when they have heard tales with their eares, enlarge them with their tongues, and by adding to reports turn mole-hills into mountains, *& ſic creſcit eundo*; becauſe as many have itching eares, ſo ſome have ſcratching and augmenting tongues, deſiring to be heard as the reporters of news. But the Egyptians turn it into another ſigne, and ſay that their copulation at the eare, and generation at the mouth, are emblemes of ſpeech, which is firſt taught to the eare, and then uttered by the tongue. All which are prettie fancies, although they be founded upon a miſtaken ground; as before I ſhewed.

Howbeit, this is recorded for a truth, that whereas the Baſilisk killeth all creatures with her poyſon that approach unto her, or contend with her, the Weaſell onely is found to match her; witneſſed not onely by * *Plinie*, but by others alſo, who beſides this Weaſell know not of any other beaſt in the world, which is able to ſtand in contention againſt the Cockatrice. But note that Rue is hatefull to a Serpent, and good againſt poyſon; the Weaſel therefore uſeth to eat of this herb both before and after the battell; ſo well hath nature taught her to finde a preſervative againſt her venimous and hurtfull adverſarie: and on the contrarie, ſo well is nature pleaſed, that no beaſt ſhould be without his match. In a word, ſeeing the Weaſell (as I ſaid before) will deſtroy mice as well as hurt pullen, it ſerveth as an embleme to demonſtrate, that one ſometime may make uſe of an enemie; and though every thing be not good for one thing, yet it doth not follow that it is therefore good for nothing. But I leave the Weaſell, and come to the Mole.

* *Lib. 8. cap. 21.*

An embleme from the Weaſel, concerning the uſe of an enemie.

The Mole.

The *Mole* is a creature well known; the ſnout of it is like to the noſe of a Shrew-mouſe; and as for eyes or ſight, ſhe wanteth either: onely the † place where the eyes ſhould ſtand, have a little black ſpot like a millet or poppie ſeed. In Latine ſhe is therefore called *Talpa*, from the Greek word τυφλὸς, *blinde*. And yet (° ſaith one) by diſſection of a Mole great with young, it hath been proved that the young ones before birth have eyes, but after birth living continually in the dark earth without light, theſe their ſeeming eyes ceaſe to grow to any perfection.

† *Plin. lib.* 11. *c.* 37.

° *Topſel.*

And ſome again have alſo witneſſed, that although the Mole be blinde all her life time, yet ſhe [p] beginneth to open her eyes in dying: which [q] I finde thus applied, and it is a prettie embleme. This ſerveth to decipher the ſtate of a worldly man, who neither ſeeth heaven, nor thinketh of hell, in his life time, untill he be dying: and then beginning to feel that which before he either not beleeved, or not regarded, he looketh up and ſeeth. For *in morte, velit nolit*, ſaith † *Geminianus*, even againſt his will he is then compelled to open his eyes, and acknowledge his ſinnes, although before he could not ſee them. It was the caſe of *Dives* to live and die in this black miſtie blindeneſſe, for he had no grace to look up till he was in torments, and then (alas) it was too late. Yet herein was that ſaying of *Gregory* plainly verified; *Oculos, quos culpa claudit, pœna aperit.*

p *Gemin. ex Ariſt.*

q *Idem lib.* 5. *c.* 29. and Dr. *Will.* on Levit. *cap.* 11.

An embleme from the Mole.

A ſinner, though blinde in life, ſees in death.

† *Ibid. cap.* 29.

The Ermin.

The *Martins* and *Ermins* be ſmall beaſts, as little, or leſſe then a Squirrell; the furre of whoſe skins is precious and of great eſteem, worn onely by kings and noble perſonages: & although theſe beaſts be not bred in England, yet there be plentie of them in many places beyond the ſeas: † they are ſaid to have a ſweet ſmell in their dung or excrement, like the Musk-cat; which proceedeth rather from the nature of the beaſt then from the meat

† Meaning the Martins.

which ſhe eateth: and for an eaſe to gouty legs, it is good to apply theſe Martins skinnes.

The *Zibeth* or *Sivet-cat*, is a beaſt bigger then any Cat, and leſſer then a Badger, having a ſharp face like a Martin; a ſhort, round, blunt eare, black without, but pale within; the eye of a blew skie-colour, the foot and leg black, and more broad or open then a Cats: It hath black claws, a black noſe, and is ſpotted all over the body, but on the noſe, with certain other marks notably deſcribed by *Geſner* and *Topſell* in their book of beaſts.

The Sivet-cat.

This is a beaſt given much to cleanlineſſe, and from this beaſt proceedeth that precious drug which we call *Sivet*. It is an excrement not growing in the cod or ſecret part onely, but in a peculiar receptacle by it ſelf, increaſing every day to the weight of a groat: and who they be which keep of theſe Cats tame, or incloſed, muſt remember to take away this diſtilled liquour every ſecond or third day, or elſe the beaſt doth rub it forth of his own accord.

That creature which men call a *Muſ-cat*, or *Musk-cat*, doth much reſemble a Roe, both in greatneſſe, faſhion and hair, excepting that it hath thicker and grayer hairs: the feet alſo are hooved, and in the province of *Cathay* theſe Cats are found. This beaſt is that from whence the Musk proceedeth, which groweth in the navell or in a little bag neare unto it; and of it ſelf it comes to be ripe, whereupon the beaſt itcheth, and is pained: he therefore rubbeth himſelf upon ſtones, rocks, and trees till he break the bag; then the liquour runneth forth, and the wound cloſeth: but ſoon after, the bag comes to be full again.

The Musk-cat.

The common or vulgar *Cat* is a creature well known, and being young it is very wanton, and ſportfull; but waxing older, very ſad and melancholy. It is called a

The Cat.

Cat,

Cat, from the Latine word *Cautus*, ſignifying *wary*; for a Cat is a watchfull and warie beaſt, ſeldome overtaken, and moſt attendant to her ſport and prey: ſhe is alſo very cleanly and neat, oftentimes licking her own bodie to keep it ſmooth and fair, which ſhe can do in every part but her head; ſhe uſeth therefore to waſh her face with her feet, which ſhe licketh and moiſteneth with her tongue: and it is obſerved by ſome, that if ſhe put her feet beyond the crown of her head in this kinde of waſhing, it is a ſigne of rain.

Why the male Cat eateth his young.

And again, it is ordinary to be known, that the male Cat will eat up the young kitlings if he can finde where they are: the reaſon of which is, becauſe he is deſirous of copulation, and during the time that the females give ſuck they cannot be drawn unto it.

Wherein Cats be dangerous.

A ſtorie ſhewing the danger of making Cats too familiar.

Moreover, it hath been uſuall for many men to play and ſport with theſe creatures; in which regard, *Topſell* very fitly calleth a Cat, *the idle mans paſtime*: affirming further that many have payed deerely for their unadviſed ſporting. Whereupon he tells a ſtorie of a certain companie of Monks much given to nouriſh and play with Cats, whereby they were ſo infected, that within a ſhort ſpace none of them were able either to ſay, reade, pray, or ſing, in all the monaſterie: the reaſon of which is, becauſe the ſavour and breath of Cats deſtroy the lungs, and conſume the radicall humour. Wherefore it is a means to bring any into a conſumption, who ſhall ſuffer theſe creatures to lie with them upon their beds, for their breath (eſpecially in a cloſe chamber) infecteth the aire: therefore they be alſo dangerous in time of peſtilence, and apt to bring home venimous infection; in which regard it is very expedient to kill them in ſuch perilous times, as they uſe to do in cities and great towns.

And note that above all things the Cat abhorreth wet or water; from whence aroſe that proverb,

Catus vult piſcem, ſed non vult tangere lympham.
Fain would the Cat ſome fiſhes eat,
But loth to wet her foot ſo neat.

In which ſhe is a fit embleme of thoſe, who will ſhrink to encounter with that pain which harbours and bringeth forth their wiſhed gain. For be it ſo that we deſire the ſweetneſſe of the well reliſht kernell, then muſt we likewiſe crack the hard ſhell; for *Difficilia quæ pulchra, Excellent things are hard to come by.*

Olaus Magnus makes mention of an abundance of wilde Cats in *Scandivania*, and where he ſpeaketh of the Lynxes, he ſheweth that they devoure many of theſe Cats: affirming moreover that the skinnes of theſe creatures are good againſt the ſharp cold of winter; whereupon thoſe of *Scythia* and *Moſcovia* uſe them for garments. *Lib. 18.*

The Mouſe.

The *Mouſe* is a creature commonly of a dunne colour; howbeit in differing places they have differing colours: for in ſome countreys they be not dunne or aſh-coloured, but blackiſh; in ſome again they be white, in ſome yellow, and in other ſome brown. In Greek he is called μῦς, and in Latine *Mus*, from μύζειν, *mutire*, of the piping noiſe which he maketh. [q] Some ſay that mice increaſe and decreaſe in the quantitie of their bodies, according to the courſe of the moon, being ever leaſt when the light of that horned lamp is furtheſt from the full. The like alſo I finde recorded of Cats eyes; for (as Mr *Topſell* writeth) the Egyptians obſerved in the eyes of a Cat, the increaſe of the moon-light: and in the male, his eyes do alſo varie with the ſunne; for when the ſunne ariſeth, the apple of his eye is long; towards noon it is round; and at the evening it cannot be ſeen at all, but the whole eye ſheweth alike.

[q] *Gemin. lib. 5. cap. 6.*

r *Var. hiſt. lib.* 1.

r *Ælianus* writeth that Mice excell all living creatures in the knowledge and experience of things to come; for when any old houſe, habitation, tenement, or other dwelling place waxeth ruinous and ready to fall, they perceive it firſt; and out of that their foreſight, they make preſent avoidance from their holes, and betake themſelves to flight even as faſt as their little legs will give them leave, and ſo they ſeek ſome other place wherein they may dwell with more ſecuritie.

A ſtorie of a Biſhop eaten up with Mice.

I remember a ſtorie of a man eaten up with Mice; by which we are taught that no humane device can withſtand Gods judgements. There was (ſaith *Munſter*) a certain Biſhop of *Magunce* named *Hatto*, who formerly had been the Abbot of *Fulden*, and in his time there was great famine in that countrey: this Biſhop, when he perceived the poore to faint, and to be oppreſſed with hunger, gathered together a great number of them into a large barn, and ſetting it on fire he burnt them up; ſaying, that they little differed from Mice, and were profitable for nothing, for they did but conſume and waſte the corn. Which damned trick and deviliſh tyrannie, the great God of heaven would not ſuffer to go away unrevenged, for he commanded the Mice by great flocks to invade this Biſhop and ſet upon him without pitie, vexing him both night and day with purpoſe to devoure him. Whereupon he fleeth for refuge into a certain tower compaſſed by the water of *Rhene*, thinking himſelf to be then ſafe, and free from their greedy gnawings and cruell bitings; but he was much deceived: for the Mice followed him, and like ſpeedy executioners to perform the juſt judgement of God, came ſwimming over, and at the laſt gnawed ſuch holes into his bodie, that they let in death, who ſuddenly ſendeth out his ſoul to give an account for this foul deed. Which accident was done in the yeare of our Lord 914, and the tower

ever

ever ſince called *the tower of Mice. Munſter Coſmog.*

Moreover, amongſt other things which the Mouſe taketh great delight to eat, he uſeth to watch for the gaping oiſter, and ſeeing it open, he thruſts in his head; which when the oiſter feeleth, ſhe preſently cloſeth her ſhell again, and ſo cruſheth the Mouſes head in pieces. Whereupon one made this embleme, *Captivus ob gulam:* whereby he deciphereth the condition of thoſe men who deſtroy themſelves to ſerve their bellies. Or (as another ſpeaketh) ſuch are here ſignified which are altogether given to their bellie, and to carnall pleaſure; for ſatisfaction whereof, *multa pericula ſuſtinent*, they undergo many dangers, and pay deerly for their follie.

An embleme from the Mouſe, concerning thoſe who deſtroy themſelves to ſerve their bellies.

The Shrew-mouſe.

The *Shrew-mouſe* is called by the Hollanders, *Molmuſſe*, becauſe it reſembleth a mole. For it hath a long and ſharp ſnout like a mole, teeth very ſmall, but ſo as they ſtand double in their mouth, for they have foure rowes, two beneath, and two above; and as for the tail, it is both ſlender and ſhort. In Latine it is called *Mus araneus*, becauſe it containeth in it poiſon, or venime like a ſpider; and if at any time it bite either man or beaſt, the truth of this will be too apparent. But commonly it is called a *Shrew-mouſe*; and from the venimous biting of this beaſt, we have an Engliſh imprecation, *I beſhrew thee:* in which words we do indeed wiſh ſome ſuch evil as the biting of this mouſe. And again, becauſe a curſt ſcold or brawling wife is eſteemed none of the leaſt evils, we therefore call ſuch a one a *Shrew*.

The Dormouſe.

† Epiphan.

The *Dormouſe* is a beaſt which endeth his old age every winter, and when ſummer cometh, reviveth again: which † ſome have therefore made an embleme of the reſurrection. They are exceeding ſleepie, and fatted with it. Their hair is ſhort, and in colour variable, onely their bellie is alwayes white: and for mine own part, I ever thought them to be no bigger then an ordinary

nary mouſe, but in *Geſner* and *Topſell* they are ſaid to be greater in quantitie then a ſquirrell.

The Alpine Mouſe.

The *Alpine Mouſe*, or *Mouſe of the Alps*, is of neare akin to the dormouſe: it is almoſt as big as a conie, and not much unlike it, ſaving that their eares be ſhorter, and their tails longer. *Munſter* doth thus expreſſe their natures, ſaying; they be much given to ſleep, and when they are waking, they be either playing and skipping to and fro, or elſe doing ſomething; as gnawing with their teeth, ſcraping with their nails, or elſe carrying in their mouthes either ſtraw, rags, or ſoft hay, or any ſuch thing that may be good for their neſts. When they live thus wilde upon great hills and mountains, and are minded to go and ſeek their prey or food, one of them ſtandeth in an high place to give notice to the reſt when any enemie or danger approacheth; which when he perceiveth, he barketh, and then all the other catch as much hay as they can, and ſo come running away.

*Munſt. Coſm.

But this is ſtrange; * Sometimes one and ſometimes another lieth down upon his back, and as much ſoft hay as may be laid upon his breaſt and bellie, he claſpeth and keepeth faſt with his feet, and then another of his fellowes getteth him by the tail, and ſo with his prey draweth him home. About autumne they begin to hide themſelves in their neſts, the which they make ſo cloſe that no aire or water can hurt them: then do they lie hidden and ſleep all the whole winter, yea ſix or ſeven moneths without any meat, rolling themſelves round like unto a Hedge-hog. Now the inhabitants do oftentimes obſerve and mark the place of their neſts, and then digging away the earth untill they come at them, they finde them ſo oppreſſed with deep ſleep that they carrie them and their neſts to their houſes, where they may keep them ſleeping untill the ſummer, if they do not heat them at the fire, or the warm ſunne.

The

The Rat.

The *Rat* is foure times ſo big as the common Mouſe, being of a blackiſh duskie colour, and is thought to belong to the kinde of Mice: Howbeit you ſhall ſometimes ſee a Rat exceeding the common ſtature, and this the Germans call † *The King of Rats*, becauſe of his larger and greater body; adding moreover that the leſſer bring him meat, and he lieth idle: and yet this (perhaps) may be in reſpect of his old age, not being able to hunt for himſelf.

† Topſel.

Dogs.

There be of *Dogs* divers kindes, neither is there any region in the world where theſe are not bred. And of theſe kindes ſome are for hunting, ſome for fighting and defence, ſome for the Boar, Bull or Bear, ſome for the Hare, Cony or Hedge-hog, and ſome for one thing, ſome for another. They bring forth their young ones blinde, which is in regard that they ſcratch their dams when they ſtirre in their bellies, which makes her therefore bring them to their birth before they be come to their eyes or ſight, as is in many other creatures beſide: and from hence aroſe the proverb, *Canis feſtinans cæcos parit catulos, The haſtening bitch brings forth blinde whelps.* Which is a fit embleme againſt all raſhneſſe and overhaſtie ſpeed in any action: for haſte makes waſte, and ſudden projects are ſeldome ripe.

An embleme from Dogs, being a caveat againſt too great haſte in any action.

The Grey-hound.

But of all Dogs the *Grey-hound* may take the firſt place; he exceedeth in ſwiftnes, and is preſerved for the chaſe. This is the Grecian Dog, called therefore a *Grey-hound.*

The Hound.

The *Hound* is of a duller temper, whoſe onely glory is in his ſmell: and of Hounds there be ſundry ſorts, but the leaſt is the *Beagle.*

The Spaniel.

In the next rank we may place the *Spaniel*, whereof there is one for the land, and another for the water; and as the Hounds were for beaſts, ſo theſe are for birds.

The Maſtive.

Then there is the *Maſtive*, whoſe vertue is onely in his courage, ſtrength, ſharpneſſe of teeth, and aptneſſe to

to encounter with any fierce wilde beaſt; againſt which they are ſo cunning, that but ſeldome or never do they part any other then victours; and how fiercely they will fight with their own kinde, is apparent: nay ſometimes they have fought in defence of their maſters, and either kept them ſafe from harms, or detected the murderers, or elſe in ſome other kinde ſhewed their love; as a little after I purpoſe to declare.

And theſe (perhaps) at the firſt were the chief kindes (unleſſe the *Tumbler* and *Lurcher* ought to be reckoned by themſelves:) for concerning *Mongrels*, they came by commixtion of kinde; which is thought to be firſt invented by hunters, for the amendment of ſome naturall defect which they might finde in thoſe of a ſingle kinde. And then again, theſe Mongrels mixing likewiſe diverſly, have produced thoſe ſeverall ſeeming kindes which now are.

And as for your mimick Dogs, it is ſuppoſed that they came firſt from a commixtion of Dogs with Apes, or Apes with Bitches. Other Curres have had either Wolves, Foxes, or ſome ſuch like creatures to be their Sires; as many think.

[a] *Bark.* in his *Summ. Bonum.*
A ſtory of a loving Dog.

[a] *Lyſimachus* had a Dog which waited on him both in the warres and elſewhere: at the laſt dying and being brought to be burned (according to the cuſtome of the countrey) the poore Dog leaped into the flames, and was burned with him. And when *Titus Sabinius*, with his family, was put to death at Rome, one of their Dogs would never be driven from his maſter, and being offered meat, he took it up and carried it to the mouth of his dead maſter, endeavouring to have him eat; and when the dead carcaſe was caſt into the river *Tyber*, the Dog ſwam after, labouring by all means poſſible to lift his maſter out of the waters. Neither is it other then a cre-

Another ſtorie.

dible report out of *Plutarch*, that as King *Pyrrhus* marched with his armie, he happened to paſſe by a Dog which guarded the body of his maſter, who lay dead upon the high-way; which when the King had beheld a while as a pitifull ſpectacle, he was advertiſed that this was the third day of the poore Dogs faſting and watching there. Whereupon the king commanded the body to be buried, and the Dog for his fidelitie and love to be kept and cheriſhed. Not long after the King happened to make a muſter of his army, to ſee how well they were furniſhed; and the Dog being by, remained ſad and mute, untill at the laſt he eſpied the parties who murdered his late maſter, and then he flyeth upon them with ſuch a wonderfull force and fury that they had like to have been torn in pieces by him, turning himſelf now this way, and then that way, earneſtly beholding the King as if he deſired juſtice, howling moſt pitifully; whereupon the King cauſed the ſaid men to be committed, examined, and racked: and then not able to conceal it any longer, they confeſſe the fact and are put to death. The like alſo was once known to happen in France: for one gentleman having killed another, the murder was diſcovered by the Dog of the ſlain man, in like manner as before; onely the circumſtances did a little differ: for the Dog and the ſuſpected perſon were put both together in a ſingle combate for clearing of the matter; and when the murderer could not defend himſelf from the fury of the detecting Dog, he confeſſed the whole matter: in memory whereof the manner of the fight was painted forth, and kept to be ſeen many yeares after.

Another ſtorie.

Of *Apes* there be ſundry kindes, and many of them in ſome thing or other do reſemble either men or women; as the common *Ape*, the † *Satyre*, the *Norvegian* monſters, the *Praſian Apes* which are bred in India, the *Bearded Ape* living in Ethiopia and India likewiſe, the *Cepus* or

Apes.

† Breeding in iſlands on the further ſide of Ganges, and in the Eaſtern mountains of India.

or *Martin Munkey*; all which either in their ſhape or countenance come neare to men: as alſo the *Sphinx*, which hath an head, face, and breaſts like to a woman. Beſides which there is the common Munkey, the *Baboon*, the *Tartarine*, not much differing from a Baboon; and the *Satyrine* monſter, bearing the ſhape of a terrible beaſt, and fit onely to be joyned to the ſtory of *Satyres*. Then again there is the *Simivulpa* or *Apiſh-Fox*; and in America a very deformed creature which may be fitly called the *Bear-Ape*; and another which is called the *Sagoin*. Unto which (as not impertinent) may be alſo added the *Lamia*, which is a beaſt living in Lybia, with paps, a face, head, and hair like a woman, though in every other part like a terrible beaſt, full of ſcales, and a devourer of ſuch paſſengers as (at unawares) ſhall happen to come neare her. And as for the Fayrie tales of the *Lamiæ*, they nothing belong to this creature: neither be thoſe common reports of *Sphinx* his *riddle, any other then fables. Howbeit there is a true ſtorie of one, whoſe name was *Sphinx*, ſlain by *Oedipus*; which he could not do till he had ſcaled that ſtrong fort which ſhe had firmly builded for her own defence; and unto all but *Oedipus*, it proved as a thing impregnable. As for *ænigma*, what it was, the margent ſheweth.

* *Ænigma* in the Theban language ſignifieth an inrode or warlike incurſion; wherefore the people complained in this ſort: This Grecian Sphinx robbeth us in ſetting upon us with an *ænigma*, but no man knoweth after what manner ſhe maketh this *ænigme*. *Topſ.* hiſtory of beaſts, pag. 18.

But to proceed and leave this digreſſion, the common Apes muſt be again remembred. They be very nimble and active creatures; and for their greateſt delight, it is to imitate man in his actions.

Alexander deceived by Apes.

About the mountains called *Emodii*, which be certain hills in India, there is (ſaith *Munſter*) a large wood full of great Apes, which when *Alexander* and his ſouldiers ſaw ſtanding afar off, they ſuppoſed them to be enemies, and therefore were purpoſed to fight and ſet upon them: but ſome natives of that countrey being preſent, ſhewed to *Alexander* that it was nothing but an aſſembly of Apes,

whoſe contention was to imitate ſuch things as they had ſeen; whereupon the King turns his battell into laughing, and his fighting into merrie diſport and paſtime.

How to catch wilde Apes.

Moreover, I have ſometimes read how theſe Apes are taken. The hunters intending to catch them, uſe to come and ſet full diſhes of water within ſight of the Apes; and then they begin to waſh their eyes and face: which done, the water is ſuddenly taken and conveyed away, and in the ſtead thereof, pots full of birdlime or ſuch like ſtuffe, are ſet in their places. Then the hunters depart a little from them; and the Apes, obſerving how they before had waſhed their face and eyes, come now preſently down from the trees, and thinking to do as the men did, they daub and anoint their eyes and mouthes with birdlime, ſo and in ſuch a manner, that neither knowing or fearing any thing, they are ſuddenly made a prey, and taken alive.

And again, there is alſo another device mentioned by * *Plinie*, and this it is. They who uſe to catch Apes, take unto themſelves buskins, and put them on in the ſight of the Apes, and ſo depart; leaving behinde them other buskins inwardly beſmeared with ſome ſuch ſtuffe as was mentioned before, with which they mix ſome hairs that the deceit may not appeare: then do the Apes take them up, and plucking them upon their legs and thighes, they are ſo beſnared and entangled, that thinking to runne away they are deceived. *Ælianus* alſo writeth that when the Lions be ſick, they catch and eat Apes, not for hunger, but for phyſick.

* *Plin. lib.* 8. *cap.* 54.

An embleme from the Ape and her young.

And for the Ape, this alſo is her practiſe: when ſhe hath two young ones to be nouriſhed at once, that which ſhe loveth * beſt ſhall be alwayes held and hugged in her arms; but the other being leſſe regarded, is more roughly uſed, and glad to ſit upon the back of his damme, open to all dangers, little or nothing reſpected: and yet it ſo

* *Filium quem magis diligit, in brachiis portat, aliquam vero in humeris geſtat. Gemin. lib* 5. *cap.* 10.

Ooo happeneth,

happeneth, that the neglected one commonly fareth beſt. For whileſt the other is hugged too hard, his damme killeth him with kindeneſſe; but this rejected one liveth, although he wanteth the taſte of fooliſh cockering. So have I ſometimes ſeen it amongſt the fond ſort of partiall parents, that with too much love they often hurt ſome of their children, whileſt the other left unto their hardeſt ſhifts, thrive and proſper in a harmleſſe courſe. *Non amo nimiùm diligentes*, is therefore worth obſerving; becauſe *omne nimium* is turned into *vitium*; and the readieſt way to be ſooneſt hurt, is to be foſtred up in the fondeſt manner. For as he that flatters an uſurer, claws the devil; ſo he that ſpareth the rod, ſpoils the childe.

Againſt the fondneſſe of parents.

Geminianus mentions the like cuſtome of the fooliſh Ape, but he applieth the embleme otherwiſe, directing it as an example to decipher out the follie of a covetous man, who bears up and down in the arms of his affection, that fondling which he loveth, namely the world; but leaves and neglects other things wherein his love ſhould ſhew it ſelf, caſting them upon his back and as it were behinde him, although afterwards it be his hap to ſuffer for it. For when any neceſſitie ſhall urge the Ape to runne, ſhe caſteth down the young one in her arms; but the other behinde her, ſitteth ſtill and hinders her courſe; ſo that being oppreſſed ſhe is taken. In like manner when he, whoſe onely love and joy was in the world, is compelled by death to flie away, he letteth go that which was his beſt beloved, and thinking to eſcape the eager purſuit of his fierce tormentours, he is deceived; becauſe the neglect of things to be regarded, lieth heavie on him, and they help now to make him wretched. It is better therefore to be poore then wicked; for it is not thy povertie, but thy ſinnes, which ſhut thee out from God: and (fond fool!) do not they take pains without gains, labour in vain, and traffick ill, who loſe their ſouls

The follie of a covetous man.

ſouls to fill their bagges? For (as Iſaac ſhewed in bleſſing him who was to be bleſt) the dew of heaven muſt go before the fragrant fatneſſe of the fertil earth; but in him who loſt the bleſſing, the earths fatneſſe goes before, and takes place of the dew of heaven.

In them who are bleſſed, the dew of heaven is before the fatneſſe of the earth.

The Bear.

But do you not ſee the pawing Bear? he is a creature well known, and ſuch a one as is found in divers places of the world. † *Plinie* deſcribeth this beaſt at large, not onely ſhewing the time and manner of their birth, but alſo of their retreating to their caves, long time of faſting, and of ſleeping there. They bring forth young within the ſpace of thirtie dayes after their time of copulation, which at the firſt be ſhapeleſſe and void of form, without eyes, without hair, their nails onely appearing and hanging out, each whelp being little bigger then a mouſe; and theſe, by licking, are moulded into faſhion, and day by day brought to perfection.

† *Lib.* 8. *cap.* 36.

This beaſt can faſt many dayes, and, by ſucking his foremoſt feet, aſſwage or ſomewhat mitigate his hunger. Some ſay that they can be without meat 40 dayes, and then when they come abroad they are filled beyond meaſure; which voracitie, and want of moderation, they help again by vomiting, and are provoked unto it by eating of ants.. But above all other things, they love to feed on hony: whereupon they will fearleſly diſturb the bees, and ſearch into hollow trees for ſuch repaſt; not altogether to fill their bellies, but moſt of all to help a dimneſſe in their dull eyes. Moſcovia hath many ſuch breeding bees: and *Munſter* tells a ſtorie how a Bear ſeeking for hony, was the cauſe of delivering a man out of an hollow tree. There was (ſaith he) a poore countreyman who uſed to ſearch the woods and trees for the gain and profit of hony, and eſpying at the length a very great hollow tree, he climbed up into the top of it, and leaped down into the trunk or bodie, ſinking and ſtick-

A ſtorie of a man ſaved by a Bear.

ing faſt in a great heap of hony even to the breaſt and almoſt to the throat: and having continued two dayes in this ſweet priſon, during which time he fed himſelf with hony, all hope of deliverance was quite gone; for it was impoſſible he ſhould climbe up and get out, neither could his voice be heard although he cried with an open mouth, eſpecially in ſuch a ſolitude and vaſt place of wood and trees: ſo that now being deſtitute of all help and conſolation, he began utterly to deſpair; and yet by a marvellous, ſtrange, and (as it were) an incredible chance, he eſcaped: for it ſo fell out that he was delivered and drawn forth by the help and benefit of a great Bear, which ſeeking for hony, chanced to happen upon this tree: the Bear ſcaleth it, and letteth her ſelf down into the hollowneſſe thereof, with her back-parts firſt, in manner and faſhion of man when he climbeth. Now the man in the tree perceiving this, in a great fear and affrightment, he claſpeth faſt about the reins and loins of the Bear, who being thereupon terrified as much as the man, is forced to climbe up again, and violently to quit her ſelf from the tree (the man in the mean time uſing great noiſes and many outcries)and ſo by this accident, a wiſhed, but hopeles libertie was procured: for the Bear being feared, drew up the man and knew not of it.

And note that in Bears their head is very weak, being contrary to the Lion, whoſe head is alwayes ſtrong. And therefore when neceſſitie urgeth that the Bear muſt needs tumble down from ſome high rock, ſhe tumbleth and rolleth with her head covered between her claws, and oftentimes by duſts and knocks, in gravel and ſand, they are almoſt exanimate and without life.

Neither is it ſeldome that their tender heads catch deadly wounds, although they cannot quickly feel them, by reaſon of their ardent love to hony. For (as * *Olaus Magnus* mentioneth) in Ruſſia and the neighbour countreys

* North. hiſt. lib. 18.

countreys they uſe to catch Bears with a certain engine like the head of a great nail beſet round with ſharp iron pegs, which they hang upon a bough juſt before that hole where the Bear fetcheth his hony, who coming according to his wonted cuſtome, ſtrives to thruſt it away with his head, but the more he puts it from him, the ſtronger it cometh back upon him; howbeit he being greedy of the hony in the tree, ceaſeth not to puſh againſt the engine, untill at laſt his many knocks cauſe him faintingly to fall. So have I ſeen many periſh through their own vain and fond delights: for as the ſweetneſſe of hony cauſeth the death of the Bear; ſo the delight in ſinne cauſeth the death of the ſoul. * *Geminianus* applies it thus; ſaying, that as the hony-ſeeking Bear deſtroyes her ſelf by her own folly, in beating back the piercing hammer; ſo man, who ſeeketh after the pleaſures and delights of ſinne, wounds himſelf by puſhing againſt the pricks: for the word of God, as a † hammer breaking the rocks, reſiſteth both him and his ſin; which whileſt he * caſteth from him, it doth more ſtrongly impinge upon him, and will at the laſt † day judge him to perdition.

An embleme concerning the end of ſins ſweetneſſe.

*Gemin, lib. 5, c. 35.

† Jer. 23. 29.

* Pſal. 50. 17.

† Rom. 2. 16.

The Bugill. Wilde Bulls.

The *Bugill* is of the ſame kinde with Kine and Oxen, and ſo is that other beaſt which we call a *Byſon*.

The *Byſon* is a kinde of wilde Bull, never tamed, and bred moſt commonly in the North parts of the world. He is alſo called *Taurus Pæonicus*, *The Pæonian Bull:* of which there be two kindes, the greater and the leſſe. Neither do I think theſe to be any other then thoſe wilde Bulls of Pruſſia mentioned by *Munſter*, in his book of Coſmography, ſaying, *There be wilde Bulls in the woods of Pruſſia like unto the common ſort of Bulls, excepting that they have ſhorter horns, and a long beard under the chinne. They be cruell, and ſpare neither man nor beaſt; and when any ſnares or deceit is prepared and ſet to take them, or*

or if they be wounded with arrows or the like, they labour moſt vehemently to revenge their wounds upon him that gave them; which if they cannot do, then through madneſſe, by ruſhing and ſtumbling on trees, they kill themſelves.

Some hurt themſelves becauſe they cannot hurt others.

A frantick beaſt, which, when he taketh harm
And cannot give, dies whil'ſt revenge is warm.
Such ſavage beaſts there be in humane ſhape,
Whoſe moodie madneſſe makes them deſperate;
And 'cauſe they cannot harm their hurting foe,
They harm themſelves, and ſhew their malice ſo.

The Elk.

The *Elk* cannot live but in a cold countrey, as in *Ruſſia, Pruſſia, Hungaria, Illyria, Swetia, Riga,* and ſuch like. *Olaus Magnus* hath written much of this beaſt, and ſo hath *Topſell* out of *Albertus, Geſner,* and others; and *Plinie* deſcribeth it to be a beaſt much like an Ox, excepting for his hair: but others call it *Equi-Cervus,* a *Horſe-Hart,* becauſe it hath horns like an Hart, and is uſed in ſome countreys to draw men in coaches and chariots, through great ſnows and over ice. They be exceeding ſwift and ſtrong, and will runne more miles in one day, then a horſe can in three, as *Topſell* mentions in his hiſtorie of foure-footed beaſts.

The Buffe.

The *Buffe* hath an head and horns like an Hart, the body like a Bull or Cow, as alſo the feet; and moſt commonly the colour of an Aſſe: Howbeit, being hunted he is ſaid to change his colour; which (as * ſome imagine) cometh to paſſe, like as in a man whoſe countenance changeth in time of fear. This is that beaſt of whoſe skinne men make them Buffe-leather jackets; and in Scythia it ſerveth to make breaſt-plates, of ſtrength able to defend from the ſly force of a fierce dart.

* *Topſell.*

Of Deere.

Of *Deere* there be more kindes then one. Amongſt thoſe which be termed *Fallow-Deere,* there is the Buck

and

and the Doe; the one being the male, the other the female. And concerning the *Red Deere*, there is the Hart and Hinde; the Hart being the he, and the Hinde the ſhe.

Then again there is another ſort bearing the names of *Roes*; of which the male is the Roe-buck, and the female the Doe.

Theſe creatures are ſaid to be their own Phyſicians, and (as it were) not needing the help of man, can cure themſelves through a ſecret inſtinct of nature, and the providence of God their maker: for by feeding on that precious herb *Dictamnum*, or *Dittanie*, mentioned before in the third dayes work, they cure themſelves of their cruell wounds, and ſo become whole again: and for other ills, they have other herbs. The males are horned, which they caſt off once every ſpring; and being diſarmed Pollards, they uſe to keep themſelves cloſe hidden, and go not forth to relief but by night; and as they grow bigger and bigger they harden in the ſunne, they in the mean time making ſome proof of their ſtrength againſt hard trees: and when they perceive them to be tough and ſtrong enough, then they dare boldly go abroad, thinking themſelves well armed now again. *Gemin. lib. 5. c. 42.* * *Plinie* ſaith, they can endure to ſwim thirty miles endwayes: and when they are to paſſe any great river, to go to Rut in ſome iſle or forreſt, they aſſemble themſelves together in herds; and knowing the ſtrongeſt and beſt ſwimmer, they put him in the forefront, and then he which cometh the ſecond, ſtayeth up his head upon the back of the firſt, and all the reſt in like manner even unto the laſt: but the foremoſt being weary, the ſecond ever takes his place, and he goes back unto the hindmoſt. * *Lib. 8. cap. 32.*

The ſaid authour alſo witneſſeth, that the right horn of an Hart is of a ſoveraigne and precious vertue: and as a thing

thing confeſſed of all, the Hart is known to fill up the number of many yeares; as was proved by the Harts of *Alexander*, caught about an hundred yeares after his death, with rings and collars on them ſhewing no leſſe. Being hunted and ready to be taken by the hounds, they will for their laſt refuge fly to houſes and places of reſort, chooſing rather to yeeld unto man then dogs.

They go to Rut about the midſt of September, and at the end of eight moneths they bring forth young, ſometimes two calves at once: and theſe they practiſe to a nimble uſing of their legs from the very beginning; leading them up to high rocks, and teaching them to leap, runne, and fly away as occaſion ſerveth. A fit embleme of carefull parents, who teach their children whileſt their yeares be green, inſtructing them betimes in the right way wherein they ought to walk; according to that of Solomon, *Train up a childe in the way he ſhould go: and when he is old he will not depart from it*, Prov. 22. 6.

An embleme from the Hart; ſhewing that children ſhould be taught betimes.

And again, in their flying to man when the hounds oppreſſe them, they be fit emblemes of thoſe who fly to that God in the cloudie dayes of dark affliction, whom before they ſought not after: for ſaith the Lord, *In their affliction they will ſeek me early.* And is it not often ſeen, that *Miſery can open thoſe eyes which happineſſe hath cloſed, and abate that Tympanie which proſperitie hath ingendered?* Yes verily. For as the waters of the ſunne, which *Curtius* mentions, are cold at noon when the Aire is hotteſt, and hot at midnight when the Aire is coldeſt; ſo it is with us: our zeal is coldeſt in the ſunneſhine of proſperitie, but gathers heat when trouble cometh: And if trouble cannot do it, nothing can.

Another.

Our eyes are opened in affliction.

Moreover,

Moreover, this alſo is not impertinent. I have read of the Hart (ſaith one) that he weeps every yeare for the ſhedding of his head, though it be to make room for a better. So do I ſee the worldling go away ſorrowfull at this very ſaying, *Go, ſell all that thou haſt*, though it be for treaſure in heaven: the reaſon of which is, becauſe men do not look at what they are to have, but what they are to part with; and at any time will be for one bird in the hand, rather then five in the buſh: yet ſlight it not, but mark it well; He that conſults with his bodie for the ſaving of his ſoul, will never bring it to heaven: neither is it any harm to loſe the worſe for finding of the better, nor any thing in hand too deer for that happineſſe which is yet to come. No matter therefore though we ſow in teares, ſo we may reap in joy: for as the difference between time and eternitie is unſpeakable; ſo it is alſo, betwixt heaven and earth.

Another embleme concerning thoſe who ſorrow to part with earth, although they may gain heaven.

Alſo, this I likewiſe finde, that when the Hart is † taken by the hounds, or any other device of the hunters, he will then ſhed forth teares as well as when he caſteth his head. So ſhould a penitent and a watchfull ſinner, who is carefull to avoid the wiles of the devil, he ſhould not ceaſe to weep when he ſeeth how he is overtaken; for there is one on high who marks his teares, and puts them up into his bottle; alwayes pleaſed to ſee a ſorrowfull beſpotted ſoul baptized in the pearled drops of repentant dew. But to proceed.

† *Gemin. lib. 5.* Another embleme.

We ſhould weep for ſinne, by the example of the Hart.

Tragelaphus is a kinde of Deer-goat, of which *Geſner* maketh two ſorts; the firſt whereof hath horns like a Deer; the ſecond like a Goat, but more crooked and bending backward.

Tragelaphus.

There is likewiſe another beaſt, moſt common in the Northern parts; *Olaus* calleth him the *Rangifer*: he alſo hath horns like a Deer, and on him men uſe to ride in ſtead of horſes.

The Rangifer.

The Goat.

The common *Goats* are eaſily known; but the Syrian Goats are differing, having long flapping eares like a deep-mouthed hound: and of theſe there be two kindes, the greater and the leſſe. Then again there is another Goat called the *Rock-goat*, differing from the reſt: and as for the Kid, it is a young Goat, a ſucker, or one newly taken from the damme.

The Badger.

The *Badger* fighteth upon his back, and ſo maketh uſe both of his teeth and claws: the Fox makes no denne, but driveth away the Badger out of his, by piſſing in it.

Sheep.

Sheep naturally be of a hot diſpoſition, weak, tender, harmleſſe, and ſo farre from greedineſſe, that they will live of leſſe food then any other beaſt of their bigneſſe. They be alſo pitifull amongſt themſelves; for when they perceive any one of their fellows to be ſick and fainting through heat, they will ſtand together and keep away the ſunne. The rammes and ewes are fit for generation from two yeares of age untill they be ten: neither do we finde any thing, either in them, or without them, which is not of ſome good uſe and profit. And note that the ewes bear their young ones in their bodies, an hundred and fiftie dayes, and no longer, according to the common account. I have heard of ſheep in ſome countreys which have yellow fleeces; but here with us, they be alwayes either black, white, or of a colour neare to a ruſſet. It is ſtrange how in a great flock, every lambe ſhould know his own damme: and prettie ſport is it, to ſee how they will play, and skip up and down. Howbeit the ſhepherds finde much trouble in one propertie belonging to theſe dancing creatures; for if one lambe chance to skip into a river or ditch, the reſt (if they be by) will ſuddenly follow and do the like. In which they be emblemes of thoſe, who will rather ſtrive to do as the moſt then as the beſt: and yet goodneſſe goes not by multitude; for the moſt are commonly the worſt: neither

An embleme from the Lambes, concerning thoſe who often periſh by following the ſteps of the greateſt multitude.

ther is a way alwayes to be choſen for the number or quantitie of companions, but for the qualitie; and better is it to go to heaven with ſtrangers, then to hell with our friends. *Dives* therefore would have ſent from the dead, to have it told his brethren. What? that the way to happineſſe is to follow goodneſſe, although it be but *grex puſillus*, a ſmall and little flock.

The Horſe

Mares are ſaid to have their full increaſe in five yeares, but the *Horſe* not till ſix. And there be ſome who write that an Horſe ſhould not be broken or tamed untill two yeares of age: and firſt of all he is to be rubbed and chafed, and uſed with flattering and gentle words, his ſtable ſhould be laid with ſtone, and by little and little he muſt be uſed to go upon the ſtones that his feet might be hardened. At the beginning let not him who ſhall ſit or break him be too rough, nor wearie him with running, but prove and turn him gently on both ſides, and touch him rather with the ſtick then ſpurre.

They are ſaid not onely to have knowledge of their riders and keepers, but alſo of their generation and deſcent, knowing their ſires and dammes in ſuch wiſe, that (as *Plinie* ſaith) they will refuſe to couple or engender with them: which how true it is, the breeders of Horſes be the beſt witneſſes. They be apt to learn, having a greater love to exerciſe then any other beaſt. Their courage and valour is infinite, and being once trained unto it, they take an exceeding delight in the warres, and will (as it were) prepare themſelves man-like for the ſame. Neither hath it been but ſometimes, and that not ſeldome known, how they have * mourned for the loſſe or death of their maſters: and how apt they be to endure labour, there is none but knoweth.

* *Plin. lib. 8. cap. 42.*

The marks of a good Horſe.

But to know a good Horſe and his age, theſe be his marks. He ſhould be of one colour, excepting ſome mark or ſtarre to grace him; his mane ought to be thick

and ſtanding up, his loins ſtrong, his head ſhort, his neck muſt be erect, his eares ſmall according to the proportion of his head, a broad breaſt, a mean bellie, ſhort hips, a large tail and ſomewhat curled, ſtraight legs and equall knees, ſtedfaſt hoofs and groſſe, and yet not too big nor too ſmall, and in his legs not ſo much fleſh as bone.

How to know the age of an Horſe.

As for his age, when he is two yeares old and an half, his middle teeth both above and beneath do fall; when he is three yeares old, he caſteth thoſe which be like unto dogs teeth and bringeth forth new; before ſix, his upper double teeth do fall, and at ſix he ſupplieth his want again: at ſeven likewiſe he hath all equall, and from thence (ſome ſay) his teeth begin to be hollow: at ten his temples are alſo hollow, his teeth ſtick out, and his brows ſometimes wax gray. But of this enough.

The Jerf.

A fit embleme againſt gluttonie and drunkenneſſe

The *Gulon* or *Jerf* is a beaſt in the North parts of Suetia: *Olaus Magnus* hath largely deſcribed it in the eighteenth book of his Northern hiſtorie, affirming that it is the moſt inſatiable and devouring creature that is: for having killed his prey or found ſome carcaſe, he feedeth without giving over, untill his bellie be ſo full that it will hold no more, but ſtrouteth out and is puffed up like a bag-pipe; then to eaſe himſelf, he thruſteth in between two narrow trees, and ſtraineth out backwards that which he hath eaten, and ſo being made emptie, returneth again and filleth himſelf as before, and then ſtraineth it out between the two trees, and returneth to the carcaſe to eat again; and thus he continueth untill he hath devoured all: which being conſumed, he hunteth after more, in this ſort continually paſſing his life. Which beaſt (as is worthily * obſerved) is a fit embleme of thoſe riotous and gluttonous men, who paſſe whole dayes and nights in eating and drinking; and when they have filled themſelves ſo full that their bodies will hold no more, they vomit up what they have taken,

* By Sir Richard Bark. in his *Summ. bonum.*

taken, and then return to their carowſing cups and cheer again, as though this onely were their felicitie, and end for which the mighty God had made them. But let them know, that (although many live as if they came but into this world to make merry and away) ruine will follow riot: and it were well for ſuch men, as they have lived like beaſts, if they could likewiſe die like beaſts, never to live again: but (alas) they cannot; here is their miſery, that they onely leave their pleaſures behinde them, and not their ſinnes. For when Eſau ſells his birthright for a meſſe of pottage, he may wiſh for a bleſſing and not finde it, although he ſeek with tears; or when Balthaſar ſpends his time in damned quaffing, in ſtead of quenching his thirſt he may drown his ſoul: for unleſſe there were weight in vanitie, or ſubſtance in deceiving pleaſure, theſe men put into the balance are found too light. Wherefore, let not eating and drinking take away our ſtomacks to ſpirituall things, but let us eat to live, and live to praiſe the Lord.

The fleſh of this *Jerf* is nothing wholeſome for food, but their skinnes are precious, and uſed of great men to be worn in garments: and as for his name, the natives call him *Jerf*; but in Latine he is *Gulo, videlicet à guloſitate*, from his gluttonous feeding.

And one thing more is yet obſervable. When the hunters come to catch him, they lay a freſh carcaſe in the place where he haunteth; that being filled, and as it were wedged in between his trees, they may ſet upon him and take him with eaſe. So is it often a wretched mans caſe, to periſh by means of that wherein he took delight; and ſuddenly to be taken away, even whileſt he follows his wonted courſe. But this is ſtrange: for are men ſtill ignorant, and yet to learn what this life is? It is a journey unto death, and every day doth make it ſhorter: and ſometimes the nearer it

Another embleme, concerning thoſe who are ſuddenly taken away in the very act of their ſinnes.

 cometh,

cometh, the further we are from thinking of it. For ſecuritie is a great enemy to prevention; and upon thought that we ſhall not die yet, it comes to paſſe that we ſeldome prepare to die at all.

Make not therefore the laſt firſt, and firſt laſt; leſt by being caught in thy ſinnes, neither firſt nor laſt thou come at heaven.

The Gorgon. The *Gorgon* or *Catoblepas* is for the moſt part bred in Lybia and Heſperia. It is a fearfull and terrible beaſt to look upon, it hath eye-lids thick and high, eyes not very great, but fiery, and as it were of a bloudie colour. He never uſeth to look directly forward, nor upward, but alwayes down to the earth: and from his crown to his noſe he hath a long hanging mane, by reaſon whereof his looks are fearfull. Moreover, his feet be cloven, and his body all over as if it were full of ſcales. As for his meat, it is deadly and poyſonfull herbs; and if at any time this ſtrange beaſt ſhall ſee a Bull or other creature whereof he is afraid, he preſently cauſeth his mane to ſtand upright, and gaping wide he ſendeth forth a horrible filthy breath, which infecteth and poyſoneth the aire over his head and about him, inſomuch that ſuch creatures as draw in the breath of that aire, are grievouſly afflicted, and loſing both voice and ſight, they fall into deadly convulſions. *Topſell.*

The Baſilisk. Next unto which I may mention the *Cockatrice* or *Baſilisk*,, and ſo come to ſerpents. Now this is the King of ſerpents; not for his magnitude or greatneſſe, but for his ſtately pace and magnanimous minde: for the head and half part of his body he alwayes carries upright, and hath a kinde of creſt like a crown upon his head. This creature is in thickneſſe as big as a mans wriſt, and of length proportionable to that thickneſſe: his eyes are red in a kinde of cloudy blackneſſe,

neſſe,as if fire were mixt with ſmoke.His poyſon is a very hot and venimous poyſon, drying up and ſcorching the graſſe as if it were burned,infecting the aire round about him, ſo as no other creature can live neare him: in which he is like to the *Gorgon*, whom laſt of all I mentioned.

And amongſt all living creatures, there is none that periſheth ſooner by the poyſon of a Cockatrice, then man; for with his ſight he killeth him: which is, [n] becauſe the beams of the Cockatrices eyes do corrupt the viſible ſpirit of a man; as is affirmed: which being corrupted, all the other ſpirits of life coming from the heart and brain, are thereby corrupted alſo; and ſo the man dieth. His hiſſing likewiſe is ſaid to be as bad, in regard that it blaſteth trees, killeth birds, &c. by poyſoning of the aire. If any thing be ſlain by it, the ſame alſo proveth venimous to ſuch as touch it: onely a Weaſell kills it; as in the deſcription of that beaſt I have already ſhewed.

n *Topſ.* Hiſt. of ſerpents, pag. 125

That they be bred out of an egge, laid by an old cock, is ſcarce credible: howbeit, * ſome affirm with great confidence, that when the cock waxeth old, and ceaſeth to tread his hens any longer, there groweth in him, of his corrupted ſeed, a little egge with a thin filme in the ſtead of a ſhell, and this being hatched by the Toad, or ſome ſuch like creature, bringeth forth a venimous worm, although not this Baſilisk, that King of ſerpents. *Plinie* deſcribeth the Cockatrice not to be above twelve inches long, in which regard Mr *Topſell* thinketh this not to be the main and great Cockatrice, but rather that worm bred out of the former egge: wherein I wiſh every mans judgement to be his own.

* *Idem ibid.*

A note concerning nocuous creatures.

Yet though this be a nocuous creature, it much magnifieth the power of God, in being able to make ſuch a one by

by the power of his word: and as for us, both concerning this and all other hurtfull things, to us (I ſay) is ſhewen the miſerable condition which ſinne hath made us ſubject to: for before they might have been Adams play-fellows, all at his beck, at his ſervice and command, none having power to hurt him, becauſe there was nothing in him then for harm to work upon. But to proceed.

The Boas. The *Boas* is a ſerpent of an extraordinary bigneſſe; it can ſwallow down a little childe whole without breaking any bone: for as *Topſell* writeth out of *Solinus*, in the dayes of *Claudius* the Emperour, there was ſuch a one taken at Rome with a childe in his belly.

The Latines call it *Boa* and *Bova*, from *Bos*, becauſe it deſireth (and ſo do all Snakes and Adders) to ſuck the milk of Cows, inſomuch that he will never kill them untill their milk be dryed up: and then he will eat their fleſh, as before he had ſuckt their milk.

The Dragon. The *Dragon* is the greateſt of all ſerpents, as ſome write; and hath ſharp teeth ſet like a ſaw, but his ſtrength reſteth in his tail rather then in his teeth; and therefore when he fights with the Elephant, he claſpeth cloſe about his legs: and ſometimes he killeth him, but moſt commonly both die together; the Elephant for want of bloud, and the Dragon through too great fill of bloud, or elſe by the weight of the Elephants body falling on him.

† *Munſt. Epit. coſ.* He is ſometimes in the † waters, and lieth often in his den; he ſleepeth ſeldome, but watcheth almoſt continually; he devoureth beaſts and fowls; and for his eye-ſight, it is very ſharp, ſo that in the mountains he ſeeth his prey afarre off. He is bred moſt commonly in India and Ethiopia, his greateſt poyſon being

being in his tongue and gall: wherefore the Ethiopians cut away the tongue and eat the fleſh. *Munſt. Coſm.*

Plinie ſaith that through the ſtrength of poiſon in his tongue, it is alwayes lift up; and ſometimes through the heat of the ſaid poiſon lurking there, his breath is ſo hot as if he breathed fire, by which contagious blaſt he * ſometimes ſo tainteth the aire, that the peſtilence proceedeth thereof. His wings will carrie him to ſeek his prey, when and where occaſion ſerveth.

* *Munſt.*

The *Dipſas* is another kinde of ſerpent, and thoſe whom he ſtingeth die with thirſt.

The Dipſas.

But thoſe whom the *Hypnale* ſtingeth, die with ſleep.

Hypnale.

Such as are ſtung by the *Preſter*, die with ſwelling.

Preſter.

And the wounds of the *Hæmorrhois* procure unſtanchable bleeding.

Hæmorrhois.

The *Dart* taketh name from his ſwift darting or leaping upon a man to wound and kill him. His uſe and cuſtome is to get up into trees and hedges, and ſuddenly to dart from thence.

The Dart.

The *Amphiſbena* or *Double-head*, goeth both wayes, or moveth circularly with crooked windings, becauſe he hath two heads and no tail, having a head at both ends: which (ſaith * one) is a fit embleme of popular ſedition; for where the people will rule their Prince, needs muſt their motion be crooked; and where there be two heads, it is as if there were no head at all. Africa aboundeth with theſe, and ſundry the other ſerpents.

The Amphiſbena.

* *Purch.* An embleme concerning government.

Ceraſtes is a ſerpent bred alſo in Africa, having two horns on his head, in manner of a ſnail; and from thence it is that he taketh his name, being called by the Grecians κεράςης, that is to ſay, *horned.* He is about a cubit in length, and of a ſable colour. His biting, for the moſt part, is incurable: and with his horns he can faſhion out (as it were) a little coronet, whereby he † allureth the birds unto him, and then (lying hidden in the ſands, all

Ceraſtes.

† *Purch.*

but the head) he cunningly devoureth them. *Solinus*, and ſome others ſay, he hath not onely two, but foure horns; as may be ſeen in *Plinie, lib.* 8. *cap.* 23.

The Viper.

The *Viper* hath a bodie long and ſlender, like an eele or ſnake; a broad head, red and flaming eyes: and as for his teeth, they be incloſed (as it were) in a little bladder, in which he carrieth his poiſon, from thence infuſing it into the wound which he hath bitten. * Some authours write, that when the Vipers engender, the male putteth his head into the females mouth, which ſhe (being overcome with the pleaſure of copulation) biteth off; affirming moreover, that their young uſe to gnaw themſelves out of their dammes bellies, there being thereby an end both of male and female, the one in the time of conception, the other in the time of birth, and are therefore called *Vipers, viz. à vi pariendo:* but others alledge the teſtimonie of one *James Grevin*, who, in the 7 chapter of his 1 book of venimes, produceth the witneſſe of * *Ariſtotle*, ſaying that the Viper putteth forth her young ones, infolded in a membrane, which breaketh about the third day; and alſo that ſometimes thoſe which are within the bellie iſſue forth, having gnawn aſunder the foreſaid membrane.

* *Plin. lib.* 10. *cap.* 62.

† *Hiſt. anim. lib.* 5. *cap. ult.*

The Slow-worm.

The *Slow-worm* hath dark eyes and dull eares, and can heare or ſee but little. His skinne is thick, his colour is of a pale blew, intermixed on the ſides with ſome few blackiſh ſpots: he ſeldome hurteth, unleſſe by chance he be provoked.

The Adder

As for the *Snake, Adder*, and ſuch like, they be common amongſt us; and ſo is that other already mentioned; viz. the *Slow-worm*. Howbeit we finde that the Adder is a craftie and a ſubtil creature, biting ſuddenly the paſſers by; whereupon Jacob ſaid that his ſonne Dan ſhould be *Coluber in via*, Gen. 49.

This, and other ſerpents, who change their coats when

when they caſt off their skinnes, do firſt of all by faſting make their fleſh low and abated, and then by ſliding through a narrow paſſage, they ſlip them off. Which may be a fit embleme of thoſe, who when they go about to caſt off their old and former ſinnes, know that an humbling of themſelves before God, in abſtinence and faſting, is very good, and a great help to fit them for repentance: for it is certain, that if our bellie be our god, then *gula* doth not onely make way for *Galen*, and *Bacchus* for *Æſculapius*, but even for *Tophet* alſo. Whereupon we finde, that *Dives* in hell was not upbraided onely becauſe he fared *deliciouſly*, but becauſe it was *every day*. And how hard a thing it is for a man to ſerve any other god then his bellie, who is continually uſed to ſtuffe his paunch, the common practiſes of careleſſe livers make apparent; for whileſt they ſleep, and eat, and play, they never think of heaven, nor can be fitted to ſlip off their old ſinnes: but on the contrary, a retired humbleneſſe will make them both fearfull, and carefull how they walk. Blame not Paul then if this be part of his boaſting, that he could out-faſt, or out-watch the reſt of the Apoſtles: for (ſaith S. *Hierome*) *Ardentes diaboli ſagittæ, jejuniorum & vigiliarum frigore reſtinguendæ ſunt.*

An Embleme from the Adder caſting his skin, concerning the benefit of abſtinence and faſting, if it be rightly uſed.

Mr *Purchas* writeth that they have Snakes and Adders in Africa, whereof ſome are called *Imbumas*, five and twentie ſpans long, living in land and water, not venimous but ravenous, whoſe cuſtome is to lurk in trees, waiting there for their prey; and having taken it, they devoure horns, hoofs, and all, although it be a Hart: and then ſwollen with this ſo huge a meal, they be as it were drunk and ſleepie, and altogether unweldie for the ſpace of five or ſix dayes. Moreover he affirmeth that the Pagan Negroes roſt and eat them as great dainties.

African Snakes and *Adders.*

* *Aulus Gellius* ſheweth how *Attilius Regulus*, the Romane Conſul, in the firſt Punick warre, encountered with

A great ſerpent.

* *Lib. 6. cap. 3.*

with a huge ſerpent at the river *Bagrada*, being forced to plant his engines and artillerie againſt him; and killing him, his skinne was ſent to Rome for a monument, being no leſſe then 120 foot in length.

Dragons in Congo.

In the kingdome of *Congo* be certain great Dragons with wings, in bigneſſe like to rammes, having long tails, and in their chaps divers jawes of teeth, of blew and green colour; they have two feet, and feed on fleſh.

* *Purch.*

The Pagan Negroes * pray to them as gods, for which cauſe the great lords of the countrey keep them, that thereby they may make a gain of the peoples devotion when they offer their gifts and oblations.

The Scorpion.

The *Scorpion* is a venimous inſect, ſomewhat faſhioned like a crab, lobſter, or creyfiſh; they have many legs, and carrie their ſtings in their tails: ſometimes they eat their young ones and are of divers colours; the female is the biggeſt, and hath the ſharpeſt ſting. And note, that of the Scorpion is made an oyl which is good againſt the ſtinging of Scorpions: and ſo are love-ſick youngſters cured; for when nothing will help them, they may again be healed by enjoying her who gave the wound.

The Aſp.

The *Aſp* is ſomething like to a land-ſnake, but with a broader back; their eyes are red and flaming, and out of their foreheads grow two pieces of fleſh like an hard skinne: and for their poiſon, it is in a manner incurable.

Plin. lib. 8. cap.23.

Plinie writeth that they go alwayes two and two together, and if one of them be ſlain, the other will follow eagerly, and ſeek up and down after him that ſlew his mate: but it is the * providence of God Almighty to give as many remedies againſt evil, as there be evils in the world. For the dulneſſe of this ſerpents ſight, and ſlowneſſe of her pace, doth keep her from many miſchiefs which otherwiſe would be done. The beſt way to cure their ſtings, is preſently to cut off the member bitten.

* *Topſell.*

† See the authour of *Du Bart.* Summarie.

There be † they who make three ſorts of them; that is

to ſay, the *Terreſtriall* (five handfulls long) the *Hirundiner* (coloured like a Swallow,and is but a handfull long) and laſt of all the *Spitter*, greater then the other. Their biting cauſeth death within few houres: that of the *Hirundiner* is ſudden, of the *Spitter* ſomewhat ſlower, beginning firſt with a dimneſſe or trouble in the eyes, then with a ſwelling in the face, after that it proceedeth to a deafneſſe, and laſt of all it bringeth death.

Cælius Rhodiginus writeth that the Kings of Egypt did wear the pictures of Aſps in their crowns, whereby they ſignified the invincible power of principalitie in this creature, whoſe wounds cannot eaſily be cured; making it thereby an embleme of the power and wrath of a King: and the prieſts of Egypt and thoſe of Ethiopia did likewiſe wear very long caps, having towards their top a thing like a navel, about which were the forms of winding Aſps; to ſignifie to the people, that thoſe who reſiſt God and the King, ſhall periſh by unreſiſtable violence. *Topſell.*

The Chameleon.

The *Chameleons* are admirable for their aierie ſubſtance, and for the changeableneſſe of their colours; or (if you will) for their aierie ſuſtenance, although they ſometimes hunt and eat flies. He is of the form and greatneſſe of a Lizzard, but hath higher legs: his ribs joyn in his bellie as in fiſhes, his muzzle is long, and his tail ſmall towards the end, and turning inwards; his skinne is rough, his eyes hollow, and his nails crooked: and when he moves himſelf, he crawleth ſlowly like a Tortoiſe. See *Plin.* in his 8 book, chap. 33.

His tongue is almoſt half a foot long, which he can dart forth as ſwiftly as an arrow ſhot from a bow; it hath a big knot on the tip thereof,and is as catching and holding as glue; which when he darteth forth, he can faſten

to the Graſſe-hoppers, Caterpillers, and Flies, thereby drawing them down into his throat.

Why the Chameleon changeth colour.

He changeth into all and every colour, excepting white and red; whereof there be divers opinions: ſome think that he changeth through fear; but this is not like, for though fear alter the colour, as we, when we are afraid, wax wan and pale, yet it will not change the bodie into every colour: others think that by reaſon of his tranſparencie he taketh colour from thoſe things which are neare him, as the fiſh called *Polypus* taketh the ſimilitude of the rocks & ſtones, where he lieth to deceive the fiſh: and ſome again joyn both together, for the Chameleon being in fear, ſwelleth by drawing in the aire, and then his skin being thereby pent, is the ſmoother, and the apter to receive the impreſſion of the colours of things objected; agreeing in this to that of *Ariſtotle*, ſaying, that his colour is changed being puft up with winde. But be the cauſe from whence it will, it affordeth a fit embleme or lively repreſentation of flatterers, and time-ſervers, who fit themſelves for all companies, times, & occaſions, flattering any one, thereby to make fit uſe of every one.

An embleme againſt flattery.

The Lizzard.

The *Lizzard* is a little creature much like the Evet, but without poyſon, breeding in Italy and in many other countreys; the dung of which beaſt cleareth the ſight and taketh away ſpots in the eye: the head thereof being bruiſed and applied, will draw out a thorn or any other thing ſticking in the fleſh.

The Salamander.

The *Salamander* is a ſmall venimous beaſt with foure feet, and a ſhort tail; it doth ſomewhat reſemble the ſhape of a Lizzard, according to *Plinie, lib.* 10. *cap.* 67. And as for his conſtitution, it is ſo cold, that (like ice) if he do but touch the fire, he puts it out. They be common in India, in the iſle of *Madagaſcar*; as Mr *Purchas* alledgeth, where he treateth of the creatures, Planets, and fruits of India.

But ſtay; it is time to ſtop: I know not how to mention every thing; and yet there is nothing which is not worthy admiration. I made (I muſt confeſſe) as much haſte as I could, and yet me thinks I ſee both theſe, and thouſands more, runne from me flocking all together, as if they meant to dance attendance now on Mans creation; and not onely ſhew to him their due obedience and humble welcome into the world, his ſtately palace, but alſo wait to have their names according to their natures. For *whatſoever Adam called every living creature, that was* (ſaith Moſes) *the name thereof.*

The concluſion of the firſt Section.

Gen.2.19.

Let us now then come to him, for whoſe ſake all things elſe were made: for God made the world for Man, and Man for himſelf. It was therefore a daintie fancie of * one, who brought in the World ſpeaking to Man after this manner. *Vide homo, dicit Mundus, quomodo amavit te, qui propter te fecit me. Servio tibi, quia factus ſum propter te, ut ſervias illi qui fecit & me & te; me propter te, & te propter ſe. See oh man (ſaith the World) how he hath loved thee, who made me for thee. I ſerve thee, becauſe I am made for thee, that thou maiſt ſerve him who made both me and thee; me for thee, and thee for himſelf.* This I will therefore adde:

*Hug. in didaſc. lib. 1.

Herbs cure our fleſh: for us the windes do blow,
The earth doth reſt, heav'n move, and fountains flow.
United waters round the world about
Ship us, new treaſures, kingdomes to finde out.
The lower give us drink; the higher meat,
By dropping on the ground, nigh parcht with heat.
Night curtains draws, the ſtarres have us to bed
When Phebus ſets, and day doth hide his head.
One world is Man, another doth attend him;
He treads on that which oft times doth befriend him.
Grant therefore (Lord) that as the world ſerves me,
I may a ſervant to thy greatneſſe be.

Sect.

Sect. 2.

The creation of Man, being created male and female, and made according to the image of God: together with the inſtitution of Marriage, and bleſſing given to that eſtate.

THough Mankinde were the laſt, yet not the leaſt. God onely ſpake his powerfull word, and then the other creatures were produced: but now he calls a councell, and doth conſult, not out of need, but rather to ſhew the excellencie of his work; or indeed, to ſhew himſelf: he ſpeaks not therefore to the Angels but the Trinitie, ſaying, *Let us make man.* Wherein the Father, as the firſt in order, ſpeaketh to the Sonne and holy Spirit: and the Sonne and Spirit, ſpeak and decree it with the Father: and the Father, Sonne, and holy Ghoſt, all Three in One, and One in Three, create a creature to be the other creatures lord. He was therefore the laſt, as the end of all the reſt; the laſt in execution, but firſt in intention; the Map, Epitome, and Compendium of what was made before him.

Three worlds there are, and Mankinde is the fourth: The firſt is Elementarie; the ſecond a Celeſtiall world; the third Angelicall; and the fourth is Man, the little world. In the firſt is *ignis urens, a burning fire*: and this in the heavens, is *ignis fovens, a nouriſhing* and *quickning fire:* but in thoſe creatures above, ſeated in the ſupercelestiall world, it is *ignis ardens, & amor Seraphicus, an ardent, burning, and Seraphicall love*: and in the fourth are all theſe found at once. For firſt, as mans bodie is compounded of the Elements, he hath his ſhare of that warm fire in him. The influence of the Planets working on him, doth likewiſe ſhew the ſecond. And for the third, their hearts who burn within them, do declare it.

Neither

Neither was he made like other creatures, with a groveling look, or downward countenance, but with an erected viſage beholding the heavens, and with lordly looks well mixt with majeſtie.

He hath a bodie whoſe members are either *Principall* and *Radicall*, or elſe *Leſſe principall* and *Officiall*.

The ſpirits, heart, liver, brain, arteries, veins, and nerves.

His heart, liver, and brain, contain the vitall, naturall, and animall ſpirits; and theſe are carried by the arteries, veins, and nerves. The arteries carrie the vitall ſpirits from the heart. The veins carrie the naturall ſpirits from the liver, giving nouriſhment to every part. And the nerves carrie the animall ſpirits from the brain, being ſpirits for ſenſe and motion, and therefore called *animall ſpirits:* howbeit, the motive nerves ſpring from the marrow in the back; and the ſenſitive come from the brain.

The veins and the arteries go together.

Alſo know, that under every vein is an arterie: for whereſoever there goeth a vein to give nutriment, there goeth an arterie to bring the ſpirit of life. Neither is it but that the arteries lie deeper in the fleſh then the veins, becauſe they carrie and keep in them more precious bloud then the veins keep; and are therefore, not onely further from outward dangers, but clothed alſo in two coats, whereas the veins have but one. Whereupon it is no hard thing to diſtinguiſh between theſe two veſſels of bloud, if we can but remember that the arterie is a veſſel of bloud ſpirituall or vitall; and the vein, a veſſel of bloud nutrimentall: for (as I ſaid before) the veins have their beginning from the liver, bringing from thence nutritive bloud to nouriſh every member of the bodie.

Paſsions have their ſeat in the heart.

Moreover, his heart is the ſeat of all the paſſions; as in one inſtance may ſuffice: for being tranſported with fear, we call back the bloud to the heart, as to the place where fear prevaileth, the bloud going thither (as it were) to comfort and cheriſh the heart. And whereas it

may ſeem that our anger is ſeated in the gall, love in the liver, and melancholie in the ſplene: it is anſwered, that thoſe humours placed in the gall, liver, and ſplene, are not the ſeat of the paſſions and affections; but they are the occaſion whereby the paſſions are ſtirred up: as the abundance of bloud in the liver, ſtirreth up the paſſion of love, which neverthleſſe is placed and ſeated in the heart; and ſo of the reſt.

The humours ſtirre up the paſſions.

And again, ſeeing the vitall ſpirits proceed from the heart, it cannot be denied, but that this member liveth firſt, and dieth laſt.

The heart liveth firſt and dieth laſt

The head.

And as the heart was the ſeat of all the paſſions, ſo the head is a ſeat and place for all the ſenſes, except the touch; for that is not onely in one place, but in all and every place, being ſpread quite through the whole bodie or iſle of man.

The eyes.

The eyes are the windows of the bodie; and albeit a man have two eyes in his head, yet he receiveth but one ſight at once, becauſe the optick nerves meet both in one.

The eares.

The eares be like certain doores, with labyrinthicall entries, and crooked windings: and here again, although the eares be two, yet a man can heare but one ſound at once, becauſe his *acouſtick* nerves (like to the optick nerves) meet both in one.

The tongue.

His tongue diſcerneth taſtes: and albeit he have two eyes, and as many eares, yet his tongue is ſingle and alone. A man ſhould therefore heare and ſee more then he ſpeaketh; and when he ſpeaketh, not wrong his heart and ſecret thoughts, by uttering words with a double tongue: for *bilinguis* is more then God made him; and double tongues ſhall be rooted out. Beſides, the lungs be the bellows of the voice, and are ſeated cloſe to the heart; to teach us, that ſpeech ought to be the interpreter of the heart, and not that a man may ſpeak one thing and think another.

The lungs.

The

The noſe ſerveth not onely as a gutter for the excrements of the brain to flow and paſſe through, but alſo for a pipe of reſpiration to give and take our living breath, and to conduct the aire, and odoriferous ſmells, up to the brain, for the conſervation and recreation of the animal ſpirits. *The noſe.*

When the head is in danger, the hand caſts it ſelf up to ſave it. And in giving hands to man, the ſpeciall providence of God is to be marked: for he hath made him to take his meat with his hand, and hath not left him to gather and take it up with his lips, as the beaſts do; becauſe that would be a means to hinder his ſpeech by thickening his lips: as experience teacheth in thoſe, who either by nature, or by accident, have thick ſwollen lips, cauſing them to ſpeak in the mouth, uttering their words very badly, and indiſtinctly. Neither could there be ſo many quick conceits of the minde, or curious inventions of ſundry artiſts, brought to perfection, without ſuch an inſtrumentall help as the hand. *The hand.*

The feet be the baſes of the bodie, carrying man like a lordly creature, with his face from earth, and eyes to heaven; that he might thither ſtrive to come at laſt, where he inhabiteth who gave him theſe, and all his other members elſe, which now I cannot ſtand to dilate upon at large. And when he had them all, and was framed out like a curious piece, *God breathed in his noſtrils the breath of life, and man became a living ſoul:* he then took his ſecond part, when his firſt was finiſhed, neither was that ſecond made till then: for in the infuſion it was created, and in the creation it was infuſed, to be the dweller in that houſe built out of clay, and reared from the duſt. *The feet.* *The ſoul.*

And in this laſt piece, God ſtampt his image; for it conſiſted not in the figure of the bodie any otherwiſe then as the organe of the ſoul, and in that regard being a weapon *How man was made according to Gods image.*

weapon with it unto righteouſneſſe, it had ſome ſhadow thereof. For, to put all out of doubt, the Apoſtle ſheweth how we are to underſtand the image of God in man; in one place ſpeaking thus, *Which after God is created in righteouſneſſe and true holineſſe*, Epheſ. 4. 24. And in another place, *Put on the new man, which is renewed in knowledge, after the image of him who created him*, Coloſſ. 3.10. By which it appeareth that this image conſiſteth, not ſo much in any reſemblance between the ſubſtance of the ſoul and the eſſence of God (though both be immortall) nor yet in the naturall faculties thereof, as of underſtanding, will, and memorie, taken as emblemes of the Trinitie; but in the knowledge and illumination, holineſſe and juſtice of the ſoul, which are now wrought in man by grace, and then were given by creation. For that image is now loſt, and cannot be had till it be renewed: but the ſubſtance of the reaſonable ſoul, with the naturall faculties and powers thereof are not loſt, therefore therein is not expreſſed this image according to which mankinde was made. Mankinde, and not man alone: for Moſes addeth, that *male and female created he them*; to ſhew, that woman as well as man, was partaker of the ſame image: the laſt that had it, and yet the firſt that loſt it; for though ſhe were the laſt in creation, yet the firſt in tranſgreſſion, as the Scripture ſpeaketh.

Woman made according to the image of God, as well as man.

But perhaps you will think the Apoſtle denieth this, ſaying, *The man is the image and glorie of God, but the woman is the glorie of the man.* In which it muſt be conſidered, that the Apoſtle denieth not the woman, as ſhe is a creature, to be made in the image of God: but ſpeaking as ſhe is a wife, and conſidering of them by themſelves, he then is more honourable and muſt have the preeminence; in which, the woman is rightly called the glorie of the man, becauſe ſhe was made for him, and put in ſubjection to him.

1. Cor. 11. 7.

How woman is the glorie of the man.

A womans rule ſhould be in ſuch a faſhion,
Onely to guide her houſhold, and her paſſion:
And her obedience never's out of ſeaſon,
So long as either husband laſts, or reaſon.
Ill thrives the hapleſſe familie, that ſhows
A cock that's ſilent, and a hen that crows.
I know not which live more unnaturall lives,
Obeying husbands, or commanding wives.

Quarl. upon Eſther, *Med.* 3.

But to come more nearely to the creation of Woman; ſhe was made whileſt Adam ſlept: For when he had named the beaſts according to their natures, he was caſt into a ſleep: and, that God might finde a help meet for him, he takes a help out of him; performing it rather ſleeping then waking, that neither Adams ſight might be offended, in ſeeing his ſide to be opened, and a rib taken forth, nor yet his ſenſe of feeling oppreſſed with the grief thereof: and therefore it is ſaid, *God cauſed*, not *a ſleep*, but *an heavie ſleep to fall upon man*, *and he ſlept.* Which in a myſtery ſignified that deadly ſleep of the ſecond Adam upon the croſſe, whoſe ſtripes were our healing and building up again, whoſe death was our life, and out of whoſe bleeding ſide was by a divine diſpenſation framed his Spouſe the Church.

It was then from the ſide of Man that Woman came, builded up out of a rib taken from thence: not made out of any part of his head, which (if we ſeek the meaning in a myſtery) ſhews that ſhe muſt not overtop or rule her husband: nor yet made out of any part of his foot, to ſhew that man may not uſe her as he pleaſeth, not trample or contemne her: but made out of a rib, taken from his ſide, and neare his heart, that thereby he might remember to nouriſh, love, and cheriſh her, and uſe her like bone of his bone, and fleſh of his fleſh.

And being thus made, ſhe is married to Adam by God himſelf,

* Pareh. Tom. 1. lib. 1. cap. 3.

himſelf, who brought her unto him, to ſhew (ſaith*one) the ſacred authoritie of marriage, and of parents in marriage: a mutuall conſent and gratulation followeth likewiſe between the parties, leſt any one ſhould tyrannically abuſe his fatherly power, and force a marriage without either love or liking. And thus are two made one fleſh; in regard of one originall, equall right, mutuall conſent, and bodily conjunction.

Quarl. ibid.

Fleſh of his fleſh, and bone made of his bone
He framed woman, making two of one.
But broke in two, he did anew ordain
That theſe ſame two ſhould be made one again:
Till ſingling death this ſacred knot undoe,
And part this new-made one, once more in two.
Yea ſince of rib firſt framed was a wife,
Let ribs be Hi'roglyphicks of their life.
Ribs coaſt the heart, and guard it round about,
And like a truſtie watch keep danger out;
So tender wives ſhould loyally impart
Their watchfull care to fence their ſpouſes heart.
All members elſe from out their places rove,
But ribs are firmly fixt, and ſeldome move:
Women (like ribs) muſt keep their wonted home,
And not (like Dinah that was raviſht) rome.
If ribs be over-bent, or handled rough,
They break; if let alone, they bend enough:
Women muſt (unconſtrain'd) be pliant ſtill,
And gently bending to their husbands will.
The ſacred Academy of mans life,
Is holy Wedlock in a happy wife.

And laſt of all, being thus made and married, they are bleſſed with the benediction of increaſe and multiplication in their own kinde. A glorious pair, and a goodly

couple ſure they were, having neither fault to hide, nor ſhame: and yet not ſo much glorious in the ornaments of beautie (which made them each to other amiable) as in the majeſtie and ſoveraigne power ingrafted in them, to cauſe the creatures with an awfull fear and reſpective dread, come gently to them, ſubmitting like ſubjects to their King. Or, as one ſpeaketh,

———— ———— ————;———— Him he made *Idem ibid.*
The ſov'raigne Lord of all; him all obey'd,
Yeelding their lives (as tribute) to their King;
Both fiſh, and bird, and beaſt, and every thing.

Naked theſe couple were, but not aſhamed: and yet not impudent or ſhameleſſe creatures; for ſhame is the fruit of ſinne: and therefore before ſinne entred, this nakedneſſe of their bodies ſhewed the nakedneſſe and ſimplicitie of their mindes. All which continued, till the ſly envies of ſubtill Sathan buzzed in their eares a cunningly deceiving note, and tainted their eyes with curioſitie. For the fairneſſe of the apple helpt to hatch the foulneſſe of the fault, gave longing to the palate and action to the hand, to reach and convey it to the curious taſte; and yet the taſte could not then diſcern, how death and it went down together.

And (certainly) if this fell not out, or happened in the evening, end, or * cool of this day, it was ſoon after; as in the ſecond chapter of this book I have declared. Wherefore I will now conclude, and concluding ſay, * Gen. 3. 8.

* Gen. 1. 31.

*God * ſaw the works which he had made,*
And good he found them all:
If therefore now they faint or fade,
'Tis 'cauſe Man caught a fall.

For

† See Rom. 8. 19,20,21,22,23.

For ev'ry creature † groneth deep;
A change they wiſh to ſee:
They travail, ſeek, they want and weep
Till ſonnes of God be free.

For then they likewiſe freedome have,
No longer kept in pain:
Come therefore quickly (Lord) we crave,
Renew this world again:
And in its kinde (it being free)
'Twill praiſe thy name as well as we.

FINIS.

SOLI DEO GLORIA.

A Table of the principall and moſt remarkable matters contained in this book.

ABraham: *he had skill in the ſignes of heaven, and taught the ſame to the Egyptians* 347 *The ſecond age of the world was from the floud to Abraham* 16

Achates *the Eagles ſtone* 295

Adam: *he fell ſoon after his creation* 36, 37

Adamant *or* Diamond, *the moſt precious of all ſtones: and how to ſoften it* 292

Adder *and his properties* 490

Adulterie. *An embleme againſt it by an example taken from the* Sargon 381. *Adulterous men like to the Cuckoe* 406

Æſchynomen, *a ſtrange kinde of herb* 273

Affliction *opens the eyes of ſecuritie* 480. *One patient in trouble like to the ſtone* Amiantus 299. *Falſe friends flie away in affliction* 293. 405. *Affliction ought to be taken patiently, by an embleme from the Camel* 444

Ages *of the world* 15. *There be ſix ages, but not of equall thouſands* 16

Agnus caſtus, *and the properties* 274

Aire. *From the earth to the higheſt Firmament nothing but aire* 116. *See more in the word* Regions.

Alabaſter 291

Alborach *a beaſt frequent in Turkie, on which they fable Mahomet was carried into heaven* 457

Alexander *deceived by* Apes 472

Alpine-mouſe, *and the ſtrange properties of it* 468

Alume *and the ſeverall kindes thereof* 304

Amber 303, 304. *Amber-greeſe* 368

America. *A conjecture how America came at the firſt to be unknown* 233

Amethyſt, *a ſtone of power to reſiſt drunkenneſſe* 294

Amiantus, *a ſtone which the fire cannot hurt* 299

Amphisbena, *a ſerpent with two heads* 489

Ampelite, *a black pitchie earth of the*

the ſame nature with our coals 301
Amphitane, *a ſtone of neare nature to the load-ſtone* 298
Anacrampſeros, *an herb cauſing love* 272. Sowbread *is of the ſame qualitie* ibid.
Androdamas *is a ſtone ſtopping anger and furie* 299
Angels, *when they were created* 53. *How Manna is ſaid to be Angels food* 157. *The oath of the* 7th *Angel in the Revelation* 27
Angelica, *and the vertues thereof* 261
Anger *reſtrained by the Sardius* 295. *as alſo by the Androdamas* 299
Antiperiſtaſis, *what it is* 92
Apes *and their kindes* 471
Arbore de Rais, *or the tree of roots growing in India, and called the Indian fig-tree* 280
Arbore triſte, *or the ſad tree* 281
Arguments *to prove that the world began and muſt alſo end* 2, 3
Arions *ſtorie how to be credited* 379
Ariſtotle 1. *he drowned himſelf in Euripus* 210
Armadill, *an Indian beaſt* 457
Arſmart, *or Water-pepper* 259
Arſnick *rightly deſcribed, and the kindes thereof* 300
Artichoke 264
Asbeſtos, *a ſtrange ſtone which being once fired, cannot be quenched* 298
Aſp 492
Aſphaltus *or black* Bitumen 302
Aſterite, *a ſtone bearing in it the image of the ſunne* 294
Aſtrologers *many times too buſie* 10. *bold and wicked* 351, 352, &c ſequent.
Atheiſts *kick againſt the pricks* 4
Atlantick *iſland was once, and had kings raigning in it, but now it is a ſea* 233
Autumne *deſcribed* 356. *The world was made in Autumne* 32. 41, 42, 43, &c.

B

Back. *Good againſt ſtrains in the back* 268
Badger 482
Balæna, *a kinde of whale. Their love to their young; with an inſtruction from thence* 368
Barble *a warie fiſh* 383
Barnacles *or Geeſe which grow upon a tree* 282
Barreneſſe. *Good againſt barreneſſe* 262
Bartas *a divine Poet* 4. *His opinion of the worlds end* 9. *His deſcription of the worlds ages* 17. *His opinion of the worlds beginning* 4. *His opinion of the Chaos* 49.

His opinion of the waters above the heavens 63,64. *His opinion of the Regions* 85. *His opinion of wheat rained* 147. *His opinion of ſtrange waters* 227. *His commendation of the vertues of herbs* 267. *His opinion oppoſite to thoſe who make the ſtarres living creatures* 322
Baſil *and the vertues thereof* 244
Baſilisk *or Cockatrice* 486
Bat 404
Baum *or Balm* 245. *It is good to cloſe wounds* 246. *Bees are much delighted with Baum* ibid.
Beam, *a burning Meteor* 90
Beams *or ſtreams ſeeming to burn* 133
Beard. *Good to make the beard grow* 254
Bear 475. *A ſtorie of a man ſaved by a Bear* ibid. *Bears love hony* 476
Beaſts. *Brute beaſts not to be renewed in the end of the world* 6
Beaver *and his properties* 452
Beautie. *The beautie of the heavenly bodies after the world is purged by fire* 7
Bees 420. *They loſe their life with their ſting* ibid. *Difference of bees* ibid. *Their king and common-weal* 421. *They never breathe* ibid. *The female bee ſuppoſed to be the drone* 422. *Their order of going to reſt and work* ibid. *Their phyſick* 423. *The manner of their ſwarming* ibid. *How to keep them from ſtinging* 244. *See more in* Thyme *and* Baum. *Good againſt their ſtinging* 425
Beggars. *How cunning beggars uſe to bliſter their arms and legs* 260
Bellie. *The bellie deſtroyeth many, by an embleme taken from the mouſe* 467
Bermuda-birds *and their properties* 418
Betonie *and the ſundry vertues thereof* 266
Birds of Paradiſe 418
Bitumen *and the kindes* 302
Black-bird 402
Blaſting *Dew* 158
Bleeding. *A bleeding herb* 272
For bleeding at the noſe 255
Bloud. *Times when it rained bloud, together with the cauſe* 149
Bloud-ſtone *or the Hæmatite* 297
Spitting of bloud, and how to help it 247.303
Boas *and the properties* 488
Bodie. *Our bodies follow the temper of the aire* 104..341. *The parts of the bodie* 497,498,499
Boldneſſe. *We muſt not be too bold in things above our reach* 9

Bole-armoniack *what it is, and what it is good for* 300
Bombyx, *or the Silk-worm* 425
Borage 245
Boy. *A ſtorie of a Boy and a Dolphin* 380
Brain. *Things good for the brain* 247. *A Scorpion bred in the brain* 244. *The animall ſpirits go from the brain* .497
Braſſe *and* Copper 288
Bream 388
Breath. *Good againſt a ſtinking breath* 250
Brionie *and the properties* 256
Brown Umber 301
Bruiſes. *Good againſt bruiſes* 269
Bubo *or the great* Owl 402. *He is thought to be an ominous bird* 403
Buffe *and his properties* 478
Bugill *and* Byſon *deſcribed* 477
Bugloſſe. *See* Borage.
Bulls *and their natures* 477, 478
Burſtnings: *good againſt them in children* 260. *Good againſt them in old folks* 269
Butterwort *and the properties thereof* 252

C

CAjetane *confuted, together with Bellarmine, concerning Noahs Floud* 75
Calamarie, *being a fiſh called the Sea-clerk* 384
Calcedon *is a ſtone which expelleth ſadneſſe* 294.
Callicia, *an herb turning water into ice* 272
Camel 443. *The Horſe & the Camel great enemies* 444. *Stuffes made of Camels hair* ibid. *The* Cameleopard 445
Cantharus *a chaſte fiſh, between whom and the* Sargon *there is great enmitie* 381
Cantharides, *what they are, and how they be dangerous* 425
Captivitie. *The fourth Age of the world from David to the captivitie* 16
Carbuncle *and the properties thereof* 294
Carp *deſcribed and his goodneſſe* 388
Carret roots *and their qualitie, together with the parſnep and turnep* 263
Caſtor *and* Pollux. *See* Helena.
Cat. *Why the male-cat eateth up the young kitlings* 464. *A ſtorie concerning the danger of cats* ib.
Cedar. *Some are perſwaded there be cedars yet in mount Lebanon firſt planted by King Solomon* 278, 279
Celandine 261
Ceraſtes *a kinde of Serpent* 489
Chalk *and the nature thereof* 301

Chameleon *deſcribed, and why he changeth colour ſo often* 493
Changing *of qualities and not conſuming of ſubſtance at the end of the world* 5
Chaos, *and how we may conſider of it* 48, 49
Chaps, *or gapings in the skie, how they are cauſed* 141
Charadrion, *a bird that cureth the Jaundiſe* 416, 417
Charms *unlawfull* 166
Chaſte. Rue *makes men chaſte, and provokes women to luſt* 248
Chaſtitie. *Medicines to procure chaſtitie* 269. 274. 293. Smaradge. *See more in* Cantharus, *as alſo* 295
Chevin *and its vertues* 388
Children. *See* Parents.
Chiliaſts *expect terrene pleaſures in the Reſurrection, as did alſo* Cerinthus 8
Choler. *A medicine againſt it* 256
Cryſtall, *what it is* 296.162
Chriſt. *The fifth Age of the world from the captivitie to Chriſt* 16. *The laſt Age and times after Chriſt* 17. *An embleme of Chriſts curing us, taken from the* Charadrion 417
Chriſtians *wiſer then Philoſophers* 4
Chryſolite, *and the vertues of it. It is good againſt Melancholy* 294
Cinnamon, *where and how it groweth* 277
Cinoper *and* Vermilion 300
Cypreſſe *tree* 278
Circles *about the Sunne, Moon, and ſtarres. Their cauſes* 134. *Their derivation* ibid. *Their ſignifications* 135
Clouds 143. *Colours in the Clouds* 130. 143. *Their height* 144. *Why they hang in the Aire* 145. *Why red clouds are ſeen onely in the Morning and Evening* 130. *Why they be of differing colours* 144. *What they ſignifie* ibid.
Cloves, *how and where they grow* 278
Clyſter. *From whence men firſt learned to purge by Clyſter* 399
Coals, *or black pitchie earth, how it is generated* 301, 302
Cock 410. *Cock-fightings* 411. *The Lion daunted by the Cock* ibid.
Cocus, *a very ſtrange tree in India* 279, 280.
Comets, *what they are* 98. *Their colours* 99. *Their faſhions* ibid. *Their ſtrange effects* 100. *Why Warres, Famines, Deaths, &c. be the effects of Comets* 103. *How to gueſſe at the ſignification* of

of Comets 105. *Their ſeverall ends* 106. *They be often above the Moon* 80, 81. 99. 115, 116
Comfrey *and the vertues of it* 268
Conger *and his goodneſſe* 387
Conie. *The Conie deſcribed* 458
Copper 288. *Copperas* ibid.
Corcuta *a kinde of* Hyæna 446
Corns. *How to cure them* 270. *As alſo how to take away Warts* 244
Corrall *and the properties thereof* 296, 297
Coſtiveneſſe, *and how to cure it* 269
Covetouſneſſe, *and* Covetous. *The covetous like to the* Swam-fisk 373. *Covetous rich men often ſlain by their heirs, ſhewed by an embleme from the* Torpedo 383. *They often deſtroy one another, ſhewed by an embleme taken from the* Kite *and* Raven 394. *They are many times leſſe fruitfull in children then the poore* 395. *The* Ferret *is an embleme of their weeping and unwillingneſſe to depart with their riches* 459. *A ſtorie of an uſurer dying* ibid. & 460. *The folly of a covetous man is ſhewed by an embleme taken from the* Ape 474
Cow. *Sea-cow and Calf* 374
Crane 412. *He teacheth Paſtours, Magiſtrates, and Governours, the dutie of their places* ibid.
Crocodile *and his properties* 371
Crow. *See Raven. Sea-crow* 414
Cuckoe *and his qualities* 404. *Who are like unto the Cuckoe* 405, 406
Cucuios, *a creature whoſe wings ſhine like fire* 419

D

Dace, *or the Dare-fiſh* 388
Daniel *was learned in the learning of the Chaldeans* 347
Darnell. *The vertues of red Darnell* 264
Dart, *a kinde of Serpent* 489
David. *The third Age of the World from Abraham to David* 16
Day. *The naturall beginning of the Day from whence* 358, 359. *Divers beginning of Dayes* ibid. *The kindes of Dayes* 358. *The intercourſe between Day and Night* 58, 59
Death *ought to be cheerfull* 413. *A ſinner hath his eyes opened in Death, ſhewed in an embleme taken from the* Mole 462
Deere *and their kindes* 478, 479
Dendritis, *a ſtone which being put under a tree, keepeth the ax that*

cutteth

cutteth it, from dulling 298
Derogation. *No derogation to the perfection of things created, although the Starres incline ſome men to ill* 343
Devil. *He worketh many times in the Aire* 153. *His knowledge is more excellent then Mans knowledge: and why* ibid.
Dew, *what it is, and why it falleth but in the Morning and Evening* 154. *No Dew a ſigne of Rain: and why* 155. *Dew hurteth Sheep* ibid. *What may hinder Dew from falling* 156. *Three kindes of Dew: Common, Sweet, and Blaſting Dew* ibid. *In thoſe who are bleſſed like Jacob, the dew of heaven goes before the fatneſſe of the earth: but in thoſe who are bleſſed like Eſau, the earths fatneſſe goes before the dew of heaven* 475
Digreſſion. *A digreſſion touching the new-found World* 232, 233
Dill *and the qualities thereof* 249. *An old cuſtome concerning Dill* 250
Diogenes *mocketh Crœſus amongſt the dead* 240
Dipſas, *a ſerpent ſo called* 489
Diſſembling, *and* Diſſemblers. *They be like unto the* Crocodile 371. *See more in* Flattery: *as alſo* pag. 455
Dittanie, *and the vertues of it* 254
Dogs *and their kindes* 469. *They have ſometimes ſhewed extraordinarie love to their maſters* 470, 471
Dolphin *deſcribed: he is very loving to man* 379
Dormouſe *and the kindes* 467
Dove *or* Pigeon *deſcribed* 408
Dragon. *The herb Dragon* 262. *A Meteor of the ſame name* 93. *A ſerpent ſo called* 488. *Dragons in Congo* 492
Dromedarie, *what kinde of beaſt it is* 445
Drowſineſſe. *A medicine to cure it* 245. 250. 256
Drunkard, *and* Drunkenneſſe. *See* Gluttonie. *How to make a Drunkard loath his liquour* 404

E

EAgle, *King of birds* 390. *The Poets feigne that ſhe carrieth Jupiters armour* 127. *Where ſhe buildeth her neſt: and how the young Eagles deal with a dead carcaſe* 391. *The Eagle is a pattern of domeſticall diſcipline* ibid. *Seducing Hereticks like to the young Eagle* ibid. *See more* 295
Earth. *The Earth made ſolid and conſpicuous*

conſpicuous both at once 227. *The Earth the Worlds centre* 228. *It ſignifieth a thing troden on* ibid. *The earth nothing in reſpect of the heavens* 224. *The earth hath no circular motion, with a confutation of the contrary opinion* 211, 212. *The true* Motus terræ *is* Germinatio terræ 214. *How it hath ſometimes rained earth* 151. *Earth of Lemnos what it is* 300. *As alſo earth of Samos* 301

Earthquakes *and their cauſes* 229, 230. *Signes of Plague & Earthquake* 185. 234. *The kindes of Earthquakes* 231. *The attendants of Earthquakes, or the* Antecedentia 234. *The effects of Earthquakes or the* Conſequentia 235, 236

Eaſt-winde 183. *Why it often bloweth up rain for a whole day. See* North.

Ebbes. *See* Sea.

Eeles, *how they are bred, and to whom they are dangerous meat* 388

Ebone *deſcribed* 276. *The ſmoke of it is good for the eyes* ibid.

Elecampane, *or* Enula-campana, *together with the vertues of it* 264

Elephant. *The Sea-Elephant, and how he is taken* 370. *The Land-Elephant, and how to catch him* 429. *The Mouſe an enemie to the Elephant* 432. *And ſo are the Dragon and Rhinoceros* ibid. *The manner of their fight* 432, 433. *The Elephant teacheth two very good leſſons; the one for married folks, the other for great men* 433, 434. *As alſo a third, concerning thoſe who fall in ſtriving to overcome others* ibid.

Elias *the Rabbin: he was much deceived in his computation of 6000 yeares for the time of the Worlds continuance* 11, 12

Elk *and his properties; he cannot live but in a cold countrey* pag. 478

Emerald, *and the vertues of it* 296

Enemy. *A man may ſometimes make uſe of an Enemie* 461

Envie *ſhadowed forth* 410. *The* Peacock *a pattern of Envy* ibid. *So alſo is the* Lynx 451, 452. *Some hurt themſelves becauſe they cannot hurt others, ſhewed by an embleme taken from the wilde Bulls of Pruſſia* 478

Ermin *deſcribed* 462

Ethnicks, *and of their moſt ancient ſtories* 2

Euripus *ebbes and flowes ſeven*

times in a day 210. *Ariſtotle was drowned there* ibid.
Exhalations *and their kindes* 87. *Earthie Exhalations may ſometimes climbe into the Starrie heaven* 115, 116, 117. 121
Eyes 498. *A water good for the eyes* 249. *Another medicine for the ſame purpoſe* 248. *A ſmoke good for the eyes* 276. *A ſtone good for the ſame* 298. 263.

F

FAce. *To make the face fair* 250. *Another for the ſame* 253. *Another* 255. *Another* 257
Falling ſickneſſe. *A medicine to cure it* 259, 260. Fall of man *in Autumne* 35, 36
Farmers. *An excellent herb for farmers to cure the dugs of their cattell* 252
Faſting. *How faſting is good and commendable* 491. 467
Fennel 249
Ferret 459
Feverfew 260, 261
Finch 402
Fire. *What place the element of fire poſſeſſeth* 118. *Fire-drakes* 93. *The heavens ſeemed to burn* 92, 93.
Firmament. *The making of the Firmament* 60, 61, 64. *Waters above the Firmament. See* Waters.
Fiſhes, *their kindes, &c.* 365, 366
Fiſhes rained, and how 147
Flaſhing *Streams or Darts, a burning Meteor* 91
Flatterers, &c. 385. 401. 443. 451. 455, 456. 494.
Flea-bane *is an herb good to drive away gnats and fleas* 252
Fleſh *rained, and how* 148
Floud *of* Noah, *in what yeare of the world it came* 20, 21. *The firſt Age from the creation to the Floud* 16, 17. *How farre this Floud was naturall, and how farre ſupernaturall* 73, 74
Flux. *How to ſtop fluxes* 268, 269, 270. *How to provoke fluxes* 271
Flying *ſparks a Meteor* 91. Flying *launces* 92
Fooliſh fire, *or* Ignis fatuus, *commonly called* Will with a wiſp 93, 94
Fountains *of oyl* 225. *Of the fountain* Dodone 226. *The originall of fountains and rivers* 204.
Fox *and his ſubtilties* 448. *How the Fox catcheth fleas* 450. *A cunning trick of a tame Fox* 451. *The Sea-fox* 380
Freckles. *A medicine to cure them* 257
Friendſhip. *Friends muſt not be left in danger, by an example taken from the* Gilt-head 386, 387. *Falſe friends like to the*

Cuckoe 404, 405. *Like to the* Fox 451. *Like to the* Hyacinth 293

Fret. *Good againſt the fret in children* 267

Frogs *rained, and how* 147

Froſt 159

Fullers *earth* 301

Fumes *and their natures* 87

G

Galactites, *a ſtone ſweating out a liquour like milk* 298

Galaxia *no Meteor* 128. *It yeeldeth a part of that matter which is in New ſtarres* 121. *What the* Galaxia *is* 129

Gardeners. *A note for thoſe who weed gardens* 249

Garlands. *From whence came the firſt uſe of willow garlands* 274. *Garlands made of myrtle* 275

Garlick *and the properties* 263

Goat *and his nature* 482. *Dancing Goats a Meteor* 91

Ginger, *and how it groweth* 277

Gluttonie *and* drunkenneſſe *made odious by that beaſtly practiſe of the* Jerf, *or* Gulon 484. 467

God. *How God ſpeaketh to men without the tongues of men* 102. *How his providence worketh in the courſe of nature* 350

Gogion *a daintie fiſh* 388

Gold *the pureſt of metals, where it grows, and how* 285

Gorgon, *a terrible beaſt* 486

Government. *An embleme concerning good government* 412. *Another concerning bad government* 489. *The bees have a common-wealth and admirable government* 421, 422

Gout, *Good againſt Choler and the Gout* 256. *Eels hurtfull for thoſe who are ſubject to the Gout* 388

Groning *of creatures to be delivered* 5

Great. *Why great men die (for the moſt part) ſooner then other men* 103. *A pattern for great men* 434

Green ſickneſſe, *and what will help it* 254

Groundſell, *and the vertues of it* 267

Griffon, *what kinde of creature it is* 393

Gilt-head *a prettie fiſh* 386

Gunnes *and* gunpowder *when, and by whom invented* 306. *How ſome have cenſured the uſe and invention of gunnes* ibid. & 307

Gurnard *a good wholeſome fiſh* 387

H

Hail, *what it is* 162, 163. *Winter hail how and where it is made*

made ibid. *The ſundry faſhions of hailſtones* 164. *Harm by hail* ibid. *How the heathens uſed to ſecure their fields from hail* 165

Hand 499

Hare *and his properties* 457

Harm watch, harm catch; *as is ſhewed by a certain example taken from that bird which watcheth to catch the flying fiſh* 382

Hawks *and their kindes* 400, 401

Head 498. *The head a ſeat for all the ſenſes excepting one* ibid.

Hearing. *A man ſhould heare more then he ſpeaketh* 498

Heart. *The heart is the ſeat of the paſſions* 497. *It liveth firſt and dieth laſt* 498

Heavens *and their derivation* 76, 77. *Not of a quint-eſſence* 77, & ſequent. *Heavens work upon man, and how* 341. 104. *How to underſtand the words* Heaven *and* Earth *mentioned in the firſt of* Geneſis *pag.* 48. 83. *The heavens are not to be conſumed according to their ſubſtance in the latter day* 5. *We look for new heavens and a new earth at the worlds end, and how* 6, 7

Heaven *and the wayes thither deſcribed; as alſo the wayes to hell* 458. *They which preferre earth before heaven, are like to the Camel which chooſeth muddie water rather then cleare* 444. *An embleme concerning thoſe who ſorrow to part with earth although they may gain heaven* 481

Heavineſſe. *There is an herb which firſt taketh a man with an heavineſſe, then with ſleeping, and laſt of all with death* 272

Hedge-hog *and his properties* 455. *A deceitfull man like to the* Hedge-hog ibid. *Other emblemes taken from the Hedge-hog* 456. *The Porcupine or mountain* Hedge-hog ibid. & 457

Helena, Caſtor *and* Pollux, *with what the Poets write of them* 95, 96

Hemerois *a kinde of ſerpent which procureth unſtanchable bleeding* 489

Hemlock *and the properties thereof* 272

Herbs *of more then ordinary qualities* 271

Heron *deſcribed, together with the nature of his dung, how it infeſteth the Hawk, &c.* 399

Herring *and his properties* 387. *The red herrings and red ſprats have little wholeſomeneſſe in them* 387, 388

Hills. *High hills* 68. *Hills before the Flood* 71. 73

Hippurin, *an herb which is admirable*

rable in ſtanching of bloud 271
Hoga, *a fiſh with wings; with an embleme concerning thriving, taken from the flying and ſwimming of this fiſh* 382
Hog. *The Sea-hog* 372. *Another kinde of Sea-hog deſcribed* 378
Hony. *See* Bees.
Hony-dew 157. *At what time of the yeare Hony-dews are moſt common* 158
Hore-hound *and his properties* 252
Hornet. *A ſtrange fight between a Sparrow and an Hornet* 424. *The Badger an enemie to the Hornet* 425
Horſe. *The properties of the Horſe and Mare* 483. *The marks of a good Horſe* ibid. *How to know the age of an Horſe* 484
Hot *things cooled are ſooneſt congealed* 160
Houſleek *or* Sen-green *is alwayes green, and therefore called* ſemper vivens. *It is good againſt Corns* 270
Houſwives. *A note for good houſwives* 255
Humours. *The Paſſions are ſeated in the heart, and ſtirred up by the Humours* 497, 498
Hyacinth *and the vertues of it* 293
Hyæna *and his ſubtilties* 445
Hypanall *a ſerpent ſo called* 489
Hyſſop *and the vertues of it* 253

J. I.

JAde. *An herb to refreſh a tired Jade* 259
Janus. *Whom the Poets pointed at in their fiction of Janus with two faces* 2
Jaſper *ſtone, and the vertues thereof* 295
Ibis, *a kinde of Stork* 394. *He doth much good in deſtroying ſerpents* ibid.
Jerf *or* Gulon, *a ſtrange beaſt whoſe delight is onely in feeding* 484
Jet *and the properties of it* 303
Jews; *their computation of* 6000 *yeares confuted* 11, 12, 13, *&c.*
Ignis fatuus, *or* fooliſh fire 93
Infection. *Sorrell good againſt infection* 270
Innocencie *taught from the Dove or Pigeon, or Turtle rather* 408
Iron, *and how it groweth* 289
Iſraelites. *The Manna of the Iſraelites* 156. *The Egyptians did not cauſe the Iſraelites to forget their ancient cuſtomes* 38
Iulus, *his head on a flame* 97

June. *Noahs ſloud began to ceaſe about the beginning of June, or end of May* 33

K.

King-fiſher *and his properties* 417
King of Sweden. *His Starre* 108, 109. *The time of his birth* ibid. *His ſpeech to his ſouldiers* 112. *His ſpeech three dayes before his death* 113. *A Memento of him for after-times* ibid.
Kite *and his properties* 394
Knowledge *in* Devils. *See* Devils.

L.

Ladanum *a ſweet dew* 158
Ladies mantle, *an herb ſo called, the vertues whereof are deſcribed* 252
Ladies threads, *a Meteor like unto cobwebs* 167. *Why there be ſpiders in it* 168
Lamia *a beaſt ſo called, and deſcribed: ſhe hath paps, a face, head, and hair like a woman* 472
Lapis Thracius *a ſtrange ſtone; it ſparkles and burns in water, but is quenched in oyl* 299
Lapwings *and their properties* 416
Lark 402
Latona *delivered by help of the Palm-tree* 276
Lavender *an herb, and why ſo called* 262
Lead, *and how it is generated* 289
Leeks, *and the properties thereof. Nero had a nick-name given him for eating of Leeks* 262. *Leeks are not good for hot cholerick bodies* ibid.
Leopard, *how he is begotten* 442
Lettice. *Harm in too much Lettice* 268
Licking lights, *or* ignis lambens 97
Lights. *Why two lights ſhew fair weather, and one light foul* 96
Light. *The creation of Light, from* pag. 53 *to* 58. *and* pag. 327, 328, 329, *&c.*
Lightning. *The kindes of Lightning* 124. *Why we ſee the Lightning before we heare the thunder* ibid. *The worſt kinde of Lightning* 125. *Three kindes of* Fulmen 126. *Not wholeſome to gaze on the Lightning* 127
Lilies *and their vertues* 268
Linot 402
Lion *and his properties* 438
Load-ſtone *and the vertues of it* 297, 298

Locks. *An herb which will open any thing lockt* 273
Love. *A pattern of Matrimoniall love, taken from the Swan* 413
Loyaltie. *The fiſh called* Cantharus *is a pattern of true Loyaltie* 381
Lungs. *The Lungs are the bellows of the voice, and ſeated next the heart: they teach us to tell the truth* 498. *Hyſſop purgeth the breaſt* 253. *A cure for a cough of the Lungs* 252. *Another for the ſame* 253. *Good to make one ſing cleare* 256. *Miſts are bad for the Lungs* 167
Lynx *and his properties* 451
Lyzzard *what kinde of creature it is* 494

M.

Mace. *See* Nutmeg.
Mad. *Good againſt the biting of a mad dog* 266.258
Madder *is good for bruiſes, and of a ſtrange propertie* 269
Maids. *An herb for great-breaſted maids* 252
Mallard *better for ſport then food* 401,402
Mallows *and their vertues* 244
Man *and his creation* 496. *The world made to ſerve Man, and Man made to ſerve God* 495. *The fall was ſoon after the creation* 36, 37
Manna *what it is, and whether the Manna of the Iſraelites were altogether miraculous* 156, 157. *How it is Angels food* 157
Mantichora, *a very ſtrange kinde of beaſt* 446
Marriage. *The Marriage bed muſt not be abuſed* 433. *See alſo* 413
Martins *and* Ermins 462
Mavis 402
Mean. *The meaneſt ought not to be contemned* 369
Megrim. *A medicine for to cure the Megrim or pain in the head* 453. 261
Melancholy. *A medicine to cure Melancholy* 245. 250. 261
Mermaids *and* Mermen, *with ſtrange ſtories to the ſame purpoſe* 375
Merry. *Good to make one merrie* 245
Metalls 284, & ſequent.
Meteors *and their kindes* 86, 87, 88, *&c.*
Milk. *Good to ingender Milk in nurſes breaſts* 249. *See more in the word* Nurſes. *Milk rained, and how* 148
Minde. *The Minde doth ſomewhat ſympathiſe with the body* 104, 341. *Good againſt a troubled*

bled minde 259
Mint, *an wholeſome herb* 255. *It is good to kill worms* ibid.
Miſts; *they be of two kindes* 166. *Why they uſe to ſtink* ibid. *They be very bad for the lungs* 167. *and a ſpeedie rot for cattell* ibid. *How to judge of the weather by a miſt* ibid.
Miracles, *or waters of miraculous vertues* 220, & ſequent.
Mole *and his properties* 462
Moneth. *The Hebrew moneths had no names (excepting foure of them) untill after the captivitie* 39. *The ſignification of the names belonging to thoſe foure* 40
Moon-wort *or* Mad-wort, *and the ſtrange properties thereof* 257, 258
Moſes *skilfull in the learning of the Egyptians* 347
Mother. *A medicine for thoſe who are troubled with the Mother* 246
Mouſe *deſcribed, as alſo the kindes of mice* 465, & ſequent.
Mouſeare *or* Piloſella 261. *It is good to harden edge-tools* ibid.
Muflo *a Sardinian beaſt* 446
Mullet *and his properties* 381
Multitude. *An embleme concerning thoſe who periſh by following the multitude* 482
Mummie 302. *Counterfeit Mummie* 303
Muſculus, *a little fiſh, and a friend to the whale* 369
Musk-cat 463
Muſtard *and the properties thereof* 256
Myrrhina *what it is* 157
Myrtle 275. *The Romane captains made garlands of it for triumph* ibid. *It was conſecrated to Venus* ibid. *Myrtle berries have been uſed ſometimes in the ſtead of pepper* 276

N

Napeir *his opinion concerning the time of the worlds ending* 24, 25, 26
Naphtha *a liquid* Bitumen, *with the kindes and properties thereof* 303, 304
Nature. *The courſe of nature firſt ſet, then followed* 35
Natures *of the ſtarres may be known* 347
Nepenthe, *an herb which expelleth ſadneſſe* 271
New-found *world, how it firſt grew out of knowledge* 232
Nightingale, *and her commendations* 402
Noah *had knowledge in the ſtarres and ſignes of heaven* 347
North-winde 182. *Why the North and*

and Eaſt windes ſometimes bring rain for a whole day 183

Noſe. *The noſe purgeth the brain, and conducteth ſmells thither* 499. *Good againſt bleeding at the noſe* 255

Nothing. *How the world was made out of Nothing* 47, 48

November. *The fifth of November not to be forgotten* 307

Nurſes. *An herb for Nurſes to increaſe their milk and make their children faire* 267. *With the Nurſes milk the children ſometimes ſuck the Nurſes vices* 394. *Women who will not nurſe their children, are like unto the Oſtrich* ibid.

Nutmeg *and* Mace, *how and where they grow* 278

Nyctilops, *an herb that ſhines* 271

O

OCtober. *The World made in October, about the 26 or 27 day: at which time the ſunne entred into Libra* 40, 41

Oker 300

Olive. *The Olive tree is green all the yeare* 30

One-berrie *an herb, called alſo* Herba Paris, *or herb* True-love 254

Onions *and their qualities* 262

Opall, *a precious ſtone of divers colours* 269

Ophiuſta *an herb dangerous to be looked on* 272

Ork. *The Ork dares fight with the Whale* 370

Oſprey, *a ravenous bird* 416

Oſtrich *and his properties* 394

Otter *deſcribed* 453

Ovaſſom *a Virginia beaſt* 446

Owl *and his kindes* 402, & ſequent.

P

PAlm. *The Palm or Date tree deſcribed; together with the branches, which are tokens of victorie* 276

Palſie. *A medicine for the Palſie* 256. *Other medicines for the ſame purpoſe* 416. 447

Panther, *what manner of beaſt it is* 442

Paradiſe. *Birds of Paradiſe* 418

Paradox *maintained by Ariſtotle* 1

Parents. *They ought to love their children, by an embleme from the Balæna* 368. *They muſt not uſe their children too harſhly in their minoritie* 396. *They ought not to bring up their children in idleneſſe, by an example taken from the*

the Eagle 391. *They ought not to be too fond over their children, by an example from the fooliſh Ape* 473, 474. *They muſt teach their children betimes, by an example from the Hart* 480
Parſley *and the kindes thereof* 258, 259
Parſnep 263
Partridge 401
Paſſions, *where they be ſeated* 497
Patience *and humilitie may be learnt from beaſts* 444
Peacock 410. *Men who make peacocks of their wives, make woodcocks of themſelves* ibid.
Pearch *and* Pike 388
Pearl *and* Prawn *are emblemes of cheating* 386
Peeviſhneſſe. *A medicine againſt it* 254
Peionie *and the vertues thereof* 259
Pelican 398. *She teacheth that policie is better then ſtrength* ibid.
Penie-ryall *and the vertues of it* 256
Pepper, *where and how it groweth* 277. *Myrtle berries were ſometimes uſed in the ſtead of pepper* 276
Perſons. *The perſons in the Trinitie* 45, 46, 47
Peter. S. *Peter explained concerning one day as a thouſand yeares, &c.* 13, 14
Philoſophers *opinions concerning the beginning & end of the world* 1
Pheſant 401
Phenix 391, & ſequent.
Picea, *or the* Pitch tree 279
Pigeon *or* Dove 408
Pillars, *burning Meteors of two kindes, round and pyramidall* 90
Pine-tree 278
Piſſaſphaltus. *See* Mummie.
Piſſing of bed. *A medicine to help it* 264
Plaice, *and from whence it is ſo called* 387
Plague. *Signes of plague and earthquake* 185. *Good againſt the plague* 270. 300
Plane, *a fair goodly tree. The old Romanes uſed to keep banquets under it* 277. *Xerxes was ſtrangely enamoured on this tree* 278
Plantain, *or* Lambes tongue, *together with the vertues of it* 271
Platea *a bird which killeth Seacrows* 414, 415
Plato *pag.* 1. *He calleth the ſea a great gulf* 206. *His opinion partly followed concerning the fierie matter of the ſtarres* 320
Pleaſure. *How we ſhould uſe our pleaſures* 372
Plover *and his wholeſomeneſſe* 415

Poets. *Whom they pointed at by their two-faced Janus* 2
Policie *better then ſtrength, proved by an example taken from the Pelican* 398. *as alſo by an example taken from the bird Platea* 415
Polypus *a fiſh with many feet, with an embleme of treacherous perſons* 385
Pontarof *a monſtrous fiſh* 378
Porcupine. *See* Hedgehog.
Porphyrio, *a ſtrange bird* 417
Poulcat, *together with their cunning* 460
Poiſon. *Things good againſt poiſon.* 248. *An incurable poiſon* 251
Predictions, *and how they are warrantable* 346, 347, 348, 349, 350, 351, 352, *&c.*
Preſter *a ſerpent, &c.* 489
Ptiſſick. *A medicine to cure it; as alſo for a ſtuffing in the head* 250, 251
Purple, *a fiſh whoſe juice is very precious* 385
Purſlain *and the qualities thereof* 269
Pyrauſta, *a flie which liveth in the fire* 425

Q

Quick-ſilver; *what it is, and why ſo called* 285
Quint-eſſence. *See* Heavens

R

Rabbin. *The Rabbins conceit of ſix thouſand yeares is very unſound* 10, 11, 12
Rape *and his vertues* 264
Rain 145. *Ordinary and extraordinarie rains* 146. *The cauſes of prodigious rains* 147, 148, 149, *&c. Why it uſeth to rain when the winde is down* 174
Rain-bow 135. *His cauſes* 136. *His colours & cauſe of their differences* ibid. *The finall cauſe of Rain-bows* 137. *How to prognoſticate of weather by the Rain-bow* ibid. *The derivation of* Iris, *a word ſignifying the Rain-bow* 138. *There was a Rain-bow before the Floud* ibid. *What the Jews uſed to do upon ſight of the Rain-bow* 140. *Wittie applications from the colours in the Rain-bow* 141. *A groſſe opinion concerning the Rain-bow* 139
Rangifer *a beaſt to ride on with horns like a Deer* 481
Raſhneſſe *condemned, by an example from the Barble* 383. *and by an example from the haſtening bitch* 469
Rats *and their kindes* ibid.
Raven 395. *An embleme from the*

Fox and Raven concerning companions in ill ibid. *The Ravens skinne helps digeſtion* 396. *The Night-Raven* 403
Ray *or* Thornback 387. *His pricks afford a good medicine againſt the ſtone* ibid.
Red-lead *what it is, &c.* 301
Red-gumme. *Good to cure it* 267
Region. *No middle Region untill the third day* 67. *The ſeverall Regions of the aire, and their qualities* 84, 85, 86, *&c. The cauſe of thoſe differing Regions* 68. 86.
Remora, *a little fiſh called the* Stop-fiſh, *becauſe he is ſaid to ſtay a ſhip under ſail* 382
Rhinoceros 434
Rib. *See* Woman.
Rivers, *and from whence they proceed* 204, 205, *&c. A river that breedeth flies* 222. *A river which reſteth every ſeventh day* 224
Robbin-red-breaſt 402
Roch 388
Romulus *and* Remus *not nurſed by a Wolf* 448
Roſemary *and the many properties thereof* 250, 251
Roſes. *The temper and vertue of Roſes, together with a conſerve of Roſes, and how to make it* 275
Rubie *what it is, and for what it is good*; viz. *to cleare the ſight, to expell ſadnes and fearfull dreams* 294
Rue *and the vertues thereof* 248
Rupture. *See* Burſtnings.

S

SAdneſſe. *Good againſt it* 294, 295. 261. 271.
Saffron 252, 253
Sage 246. *It is good for childebearing women; good for the brain; good againſt ſpitting of bloud; good for a ſtitch in the ſide, and good againſt the palſie* 247
Sagoin 472
Salamander 494
Salmon 387
Salt *and the kindes* 304, 305, 306
Saphir 293
Sardius *a kinde of Onyx* 295
Sardonyx *healeth ulcers about the nails, and preſerveth chaſtitie* 295. *Some call it a* Corneoll ibid.
Sargon *an adulterous fiſh* 381
Saw-fiſh *and* Sword-fiſh 370
Scolopendra *a fiſh of a ſtrange propertie; and how we ought to reſemble this fiſh* 384
Scorpion *deſcribed* 492. *How to cure*

cure his ſting ibid. *A Scorpion hath ſometimes been bred in the brain* 244
Scriech-owl 403
Sea. *Why ſeas be ſalt and rivers freſh* 201. *Why Springs be freſh* 206. *Why the Sea ebbeth and floweth* 208, 209, & ſequent. *Why freſh Waters and all Seas do not ebbe* 218
Seaſons of the yeare 354
Securitie. *Small ſecuritie on earth, by an example from the Squirrell* 454
Selenite, *a ſtone which follows the courſe of the Moon* 294, 295
Sentida, *an herb of a ſtrange propertie* 273
Servius Tullius, *his head burning as he ſlept* 97
Sethim. *It was that wood whereof Noah made the Ark* 276
Seven *a number of reſt* 21
Shad 388
Shark 378
Sheep *and their natures* 482. *How ſheep may catch a rot* 155. 252
Shepherds purſe 270
Shooting ſtarres *a Meteor* 92
Shrew. *A medicine to be uſed at the death of a Shrew* 263
Shrew-mouſe *and his properties ſhewed.* 467
Sight. *Sight dulled by Leeks* 262. *Rue eaten faſting, is very good for the ſight* 248. *See* Eyes.
Signes. *Signes of heaven muſt not be abuſed* 351, & ſequent.
Silver *the beſt mettall next to Gold* 288
Sinne. *We ſhould weep for ſinne, by an example taken from the Hart* 481. *We ſhould not ſleep in ſinne, by an example taken from the Sea-Elephant* 371. *When the baits of ſinne are ſwallowed they muſt be vomited up again, by an embleme from the Scolopendra* 384. *The ſweetneſſe of ſinne in the end is bitter, by an example from the Beare eating hony* 477. *Thoſe who are taken away in the very act of ſinne, what they are like unto* 485
Sinner. *A ſinner, though blinde in life, ſeeth in death, by an example taken from the Mole* 462
Sivet-cat *or the* Zibeth 463
Skirret 264
Sleet *and the cauſe thereof* 162
Slow-worm 490
Smaradge. *Plinie makes many kindes of this ſtone* 293
Snapdragon, *an herb of a ſtrange propertie*

propertie 272
Snow 160. *The matter of Snow* 161. *Why Snow is white* ibid. *Snow in the mountains and rain in the valleys, both out of one cloud; together with the cauſe thereof* 162
Societie *ought to be amongſt men, by an example taken from the Stork* 399
Sole *and* Whiting 387
Sorrell *and the vertues thereof* 270
Sorrow. *An embleme concerning thoſe who ſorrow to part with earth for heaven* 459. 481
Sothernwood *and the qualities thereof* 254
Soul. *The Soul breathed into man, infuſed in the creation, and created in the infuſion* 499. *God ſtampt his image in the Soul* ibid. & 500.
Souls. *Souls cannot appeare after death* 94, 95
South-winde 182
Sowbread *an herb of a ſtrange propertie* 262. 272
Sow-thiſtle *and the vertues thereof* 267
Sparrow *and his nature* 409
Speare-wort *the beggars herb* 260
Spheres. *A figure ſhewing their motion* 317
Sphinx, *and the meaning of Ænigma* 472
Splene. *A medicine for the ſplene* 274
Spring. *The Spring deſcribed* 355. *The creation was not in the Spring* 30. 32
Squirrell *deſcribed with his properties* 453
Starling 402
Starres 311, 312, & ſequent. *The Starres not to be worſhipped* 312. *Their matter and motion* 315, 320. *They be nouriſhed by the waters above the heavens, and how* 321, 322, 323, 324. *The reaſon of their differing heights* 324, 325. *Their offices* 327. 334. 354. *Why they ſeem to twinkle* 332. *They work upon this inferiour world* 334, & ſequent. *New Starres* 107. 114, 115. 119. *The ſignification of Caſſiopea's Starre* 108. 114
Steel, *and what it is* 289
Stitch. *Good to give eaſe to one troubled with a ſtitch in the ſide* 247
Stomack. *Good to ſtrengthen the Stomack* 250. *Good to help digeſtion* 396
Stone *in the body, with a medicine for it* 387. 254
Stones; *what they are, their kindes &c.*

&c. 290, & ſequent. *They live not a vegetative life* 291. *Common Stones* ibid. *Precious Stones* 292. *A Stone which followes the courſe of the Moon* 294. *A Stone which will cool ſeething water* 296. *A compaſſionate Stone and the reaſon thereof* ibid. 297. *A Stone of power to draw gold* 299. *The Load-ſtone* 297. *The Bloud-ſtone* ibid.
Stories. *A Storie of a Sea-woman* 375. *A ſtorie of a Boy and a Dolphin* 380. *A ſtorie of a Sparrow* 409. *A ſtorie concerning Cock-fighting* 411. *A ſtorie of a Lion* 438. *Another of a Lion* 440. *A ſtorie of a dying Uſurer* 459. *A ſtorie of two much familiaritie amongſt Cats* 464. *A ſtorie of a Biſhop eaten up with Mice* 466. *A ſtorie of a loving Dog* 470. *Another* ibid. *Another* 471. *A ſtorie ſhewing how Alexander was deceived by Apes* 472. *A ſtorie of a Man ſaved from death by a Beare* 475
Stork 399. *Leſſons to be learnt from the ſtork* ibid.
Strange. *A rule to be obſerved in Strange ſights* 131
Students. *Mint good for ſtudents* 255
Sturgeon 384
Su, *a ſtrange beaſt in the new-found world* 454
Sulphurwort; *it is good for young children* 260
Summer *deſcribed* 356
Sunne. *Whether the Sunne be the fountain of light* 329. *Why the Sunne hath ſometimes ſeemed to dance* 333. *The appearance of many Sunnes* 130. *Their cauſe* 131. *What they ſignifie* ibid.
Swallow 406. *What ſtrange things ſome have written of the ſwallow* 407. *It is ſaid that ſhe taught men firſt to build* 408. *They cure the blinde eyes of their young ones with an herb*; viz. *Celandine* 261
Swam-fisk, *a fiſh ſo called, being the moſt greedy of all fiſhes* 372, 373
Swanne. *The nature and qualities of the Swanne* 413, 414
Swine *eat no Turneps* 263
Sword-fiſh 370

T

Tamariſk. *It is of great vertue for the hardneſſe of the*

the ſplene or milt 274
Tanners. *An herb for Tanners in the dreſſing of Leather* 257
Tarragon 264
Tarantula *and his ſtrange properties* 425
Teeth. *Good againſt the tooth-ach* 261. 267. *How to ſcoure the Teeth and kill the worms in them* 251
Temper. *Waters of a ſtrange temper* 220, 221
Tench 388
Terebinth *or the Turpentine tree* 279
Thirſt. *An herb very good for the thirſtie* 269
Thrive. *The thriving of a man that (upon occaſion) is of two trades. The embleme is taken from the flying fiſh* 382. *Some men thrive in a courſe which to the vulgar ſeems contrary, by an example taken from the Sturgeon* 384
Throat. *Good for a ſore throat* 253
Thruſh 402
Thunder, *what it is* 122. *A difference in Cracks* 123. *Thunder ſometimes without Lightning, and ſo on the contrarie* ibid. *How this may be* 124. *The making of the Thunder-ſtone* 125. *See more in the word* Lightning.
Thyme, *and the vertues thereof* 259
Time, *what it is* 45. *Times when the World ſhould have ended according to ſome mens fooliſh fancies* 18. 22, 23, 24, &c.
Tinne 290
Toad. *An antipathie between the Toad and Rue* 248
Tobacco *and the kindes thereof: Where it was firſt found, together with the names, qualities and vertues thereof* 264, 265. *The Indian women take no Tobacco* 266. *The time when it came firſt into England, and by whom it was firſt brought* ibid. *A precious ſalve to be made of the green leaves* 265. *A leſſon for quaffers* ibid.
Tongue 498. *The Tongue hath brought many to miſchief* 413. *Fair tongues & falſe hearts* 443
Topaz, *a very ſtrange ſtone which ſtancheth bloud.* 295, 296
Tophus 292
Torch, *a burning Meteor* 89
Torpedo, *a benumming fiſh* 383
Tortoiſe 374
Tragelaphus 481
Treacherie. *Treacherous perſons like to the Polypus* 385. *Like to the Ape* 401. *Like to the Hawk* ibid.

Trees *and their properties* 273, 274, 275, 276, 277, 278, 279, 280, 281, 282.
Trinitie 46, 47. *The Trinitie ſhewed in making of Man* 496
Trouble. *One patient in trouble what he is like* 299
Trout. *The Trout commended* 388. *The Trout like one that loves to be flattered* 389. *Wanton Wenches like to the Trout* ibid.
Troy *and the ruines thereof lamented* 240
Turcois, *a precious ſtone good for weak eyes: it will alſo ſhew whether he that weareth it be well in health* 296
Turnep 263
Turtle 408
Tyger *and his properties* 441

V

VAliant. *He is truely valiant that can overcome himſelf* 441
Vapours; *their nature, and why they be warm* 87
Veins *and* Arteries *how they differ* 497
Vermilion 300. *The Romanes uſed to paint their gods with Vermilion* ibid.
Vertigo. *How to cure it* 261
Violets *and their vertues* 269
Viper 490
Virginia Dogs 447
Vitriol 304
Unicorn *of the ſea* 370
Unicorn *of the land* 435. *That there is ſuch a beaſt* 436. *A deſcription of the Unicorns horn* ibid. *How to catch the Unicorns* 437
Urine. *Dill is good to provoke Urine* 249
Uſe *of things is often times turned into an abuſe* 265. *We ought to make the beſt uſes of the ſtrangeſt things* 227. 131, 132

W

WArts *and their cure* 244. 263
Waſps 423
Watery Meteors 142
Water-creſſes *and their vertues* 253
Waters. *Waters above the heavens* 62, 63, 64, 65, & ſequent. *Their uſe and profit* 322, 323. *The Waters gathered together* 190. *How they were gathered together* 191. *How to one place, ſeeing there be many Seas, Lakes and Rivers* 192. *Whether they be higher then the earth* 194. *Whether there be more Water then*

then earth 199. *The benefit and uſe of Waters* 207. *Why freſh Waters do not ebbe and flow* 218
Water uſed in ſtead of Vineger 220. *Water uſed in ſtead of burnt wine* ibid. *Water making drunk* ibid. *A Water deadly to beaſts and not to men* 221. *A killing and a purging Water* ibid. *A Water making horſes mad* ibid. *A cold Water ſetting cloth on fire* ibid. *A Water which is hot enough either to boil, roſt, or bake* ibid. *A Water which maketh oxen white* 222. *A Water which changeth the colours either of ſheep or horſes* ibid. *A Water cold in the day and hot in the night* 223. *A Water which turneth wood into ſtone* 224. *Poyſoning Waters* ibid. *A Water which makes cattell give black milk* 224. *A Water which makes men mad* 225. *A Water which ſpoils the memorie* ibid. *A Water procuring luſt* ibid. *A Water cauſing barrenneſſe* ibid.
Weaſell *and his properties* 460, 461
Well. *A ſtrange well in Idumea* 224
Weſt-windes *qualitie* 183
Whale 366. *Their kindes* 367, *&c*
Wheat *rained* 147
Whirle-windes, *Storm-windes, and fired Whirle-windes* 185, 186
Willow *and Willow-garlands* 274
Willow-wort *and his properties: it is of a contrary nature to the herb Betonie* 270
Winde *in the bodie, how to expell it* 249
Winde. *Divers opinions concerning Winde* 168, 169. *Winde is more then the motion of the aire* 171. *Poets fictions concerning Winde* 172. *How God bringeth the Windes out of his treaſures* 169. *The Winde not moved by Angels* 170. *Why it uſeth to rain when the winde is down* 174. *What Winde is, upon what cauſes it dependeth, and how it is moved* 173. *Why we cannot ſee the matter of Winde* 177. *How that place is to be underſtood in the* 3 *of* John *concerning the blowing of the Winde* 178. *Aire moved augments the Winde* 174. *How the Windes are moved, and by what* 175. *In what place the motion the Winde beginneth* 176. *Particular windes* 177. *Why the winde bloweth not alwayes one way* ibid. *Oppoſite* ibid. *Oblique windes* ibid. *Whisking windes* ibid. *The diviſion, names, and number of the Windes* 178.

Mariners reckon two and thirtie Windes 179. *The nature and qualitie of the Windes* 181. *The effects of a long-continuing Winde* 184. *Why the Eaſt and North windes bring rain ſometimes for a whole day together* 183

Windows of heaven *opened in the Flond, and what they were* 69

Winter *deſcribed* 357. *A warm Winter hurtfull* 161

Witches; *they ſell windes to ſea-men* 153

Wood-pecker; *how ſhe uſeth to unwedge the hole of her neſt* 258

Wolf *and his properties* 447

Wolf-bane *and the ſtrange properties thereof* 251

Wooll *rained, and how* 152

Woman. *She was made after the image of God as well as the man* 500. *How ſhe is ſaid to be the glorie of the Man* ibid. *Why ſhe was made out of a Rib* 501. *Wherein a womans rule ought to conſiſt* 501, 502. *Childe-bearing women. Sage is good for them* 247. *The ſmell of Dragon very bad for thoſe who are newly conceived with childe* 262. *The herb* Sow-bread *is alſo very hurtfull, and cauſeth inſtant abortion* ibid. *How a doubting woman may know whether ſhe be with childe* 263. *How a woman burying her husband may ſave her credit* 256

World. *The World not eternall, and muſt alſo end* 2. *The manner how it muſt end* 4. *Impoſtours concerning the end* 18, & ſequent. *When it was created* 28, & ſequent. *Why it was not made perfect in an inſtant* 50, 51. *It decayeth daily* 78, 79

Worms *in the belly, with means to cure them* 253. 255

Worms *rained, and how* 147

Wren 402

Y

Yarrow *and the properties thereof* 267

Yeares. *The examination of the name, length, divers beginning, and kinde of Yeares* 360, 361, 362, 363

Z

Zanchie: *his opinion of the Jewiſh tradition which they take from the Rabbin Elias* 13. *His opinion of certain ſtrange and prodigious rains* 154

Zebra, *a beaſt of an excellent comelineſſe* 446

Zibeth *or the* Sivet-cat 465

FINIS.